Saving and Consumption When Children Move Out[a]

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Abstract

Based on the German Socio-economic Panel (SOEP), we show that household consumption drops and saving rises significantly within four years after a child moves out of a household. Per capita consumption of parents is approximately leveled up to that of childless peers after all children are gone. We conclude with respect to the adequacy of saving rates that calibrated life-cycle models assuming a smoothing of per capita consumption for parents with children in the household underestimate the wealth needed to smooth consumption in the long run.

Keywords: Consumption, Saving, Children, Life-cycle hypothesis

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1 Introduction

The adequacy of saving rates represents a hotly debated topic in the field of household finance. While a number of papers argue that households do not save enough in order to maintain their consumption level in retirement and even go as far as speaking of a "retirement savings crisis" (Munnell et al., 2007, p. 6), others disagree. Gale et al. (2009) as well as Love et al. (2009) see American households generally preparing well for retirement. German households are even shown to be "enthusiastic" in terms of saving (Börsch-Supan & Essig 2005).

Skinner (2007) points out that the converse conclusions may at least partly be caused by different assumptions. An important example is the fact that households' consumption needs change significantly over time in the presence of children. The point in time when children move out is likely to free up financial resources. If parents use these resources to save more in the years remaining before retirement and continue to consume in a similar order of magnitude in terms of personal consumption as before, they may not be at risk of realizing inadequate resources later in life after all. If parents prefer to consume more after their children leave the household, they may not have enough time left to build up the financial resources necessary to maintain the higher standard of living after retirement.

The objective of this paper is to analyze if and how households change their saving and consumption behavior at and after this potential turning point, what factors mediate that alteration and whether these patterns are reconcilable with the consumption smoothing rationale of the life-cycle hypothesis of saving. The analysis is based on the German Socio-economic Panel (SOEP). To the best of our knowledge, this is the first paper that addresses this particular issue on a large representative panel dataset.

We employ random effects Tobit panel regressions to show that parents use parts of the freed-up resources after a child moves out to increase their saving and consequently make up for some of their earlier shortcomings in wealth accumulation. This effect is most pronounced for the last child leaving the household and increases with family size.

Furthermore, parents level their per capita consumption with that of childless peers. Hence, they exhibit a lifestyle which will be difficult to maintain after retirement. Consequently, life-cycle models that assume smoothing of per capita consumption in a household with children underestimate the wealth needed for parents' retirement.

The upturn in saving starts one year after the move-out and gradually increases in the first three years for those without a university degree and reaches a steady state for university graduates after approximately four years. Subtracting support payments to non-resident children assimilates the two groups' reactions. This leads to the conclusion, that university graduates financially support their children more and longer than others.

2 Current State of Research and Hypotheses

2.1 Related Literature

The life-cycle hypothesis of saving and the permanent income hypothesis postulate that agents desire a smooth consumption stream over the course of their lives (Modigliani & Brumberg, 1954, Friedman, 1957). However, a large number of studies have found only modest empirical support for this prediction (see, e.g., Flavin, 1981, Mankiw, 1981, Hall & Mishkin, 1982, Carroll & Summers, 1991, Bernheim et al., 2001; for a recent review, see Jappelli & Pistaferri, 2010). In particular, consumption is not smooth but instead increases over the typical life-cycle in the beginning and decreases later in life (Thurow, 1969). At first glance, consumption appears to be tracking income, meaning, the more a household earns, the more it consumes (Carroll & Summers, 1991). Irvine (1978) was one of the first to suggest that some part of the observed behavior could be due to changes in family size. Similarly, Attanasio et al. (1999) argue that uncertainty with respect to income and capital markets as well as demographics – in particular the number of children – suffice to generate the "hump" in consumption. Attanasio & Browning (1995) demonstrate the importance of family effects for explaining the excess sensitivity of consumption to income. In their analysis of UK Family Expenditure Survey (FES) data from 1970 to 1986, it virtually disappears once demographics are controlled for. Browning & Ejrnæs (2009) show that household composition can fully explain the hump-shape, if the number and age of children are taken into account.

Apart from possibly reduced consumption requirements of the household as a whole caused by the decrease in the number of inhabitants, per capita consumption may additionally be much lower after children have left compared to otherwise similar childless households (Scholz & Seshadri, 2009). Skinner (2007), p. 69, summarizes this reasoning as follows:

> *"Parents are already used to getting by on peanut butter, given that a large preretirement budget has been devoted to supporting children, so it's not difficult to set aside enough money to keep them in peanut butter through retirement. By contrast, childless households*

> *with the same income accustomed to caviar and fine wine must set aside more assets to maintain themselves in the style to which they have become accustomed."*

Studies investigating that particular time of children moving out are scarce. By calibrating and solving a comprehensive life-cycle model, Love (2010) prescribes an upturn in savings right around the age at which children move out of the household and finish post-secondary school as optimal behavior. He derives a "hump-shaped" consumption path similar to that observed in other studies, with a noticeable upturn in saving at the age when children leave the household. One additional interesting feature of his model is a slow drawdown of wealth in retirement, stressing the importance of bequest motives. Both the acceleration in saving and the lower drawdown of resources are even more pronounced for college graduates. He concludes that children are costly through expenditures while they live with their parents and in a number of post-exit years due to child support and college expenditures, but promote saving at the same time. Younger households save for their offspring's college education and older ones put aside money for bequests.

In the – to the best of our knowledge – only paper empirically identifying households whose children move out, Coe & Webb (2010) find no significant change in household consumption on nondurables and consequently a sharp increase per capita. Their results are based on 2,880 observations on 833 households from the U.S. Health and Retirement Study (HRS) from 2001 to 2007. While 90 of these units have children, only 36 households report a move-out during that period. The average parent's age of the latter is 60 for men and 56 for women at the time of the children's exit, which they acknowledge to be considerably older than their cohorts' averages. They hypothesize that, since retirement is so soon for these subjects, they might be more responsive to the move-out of their children when it comes to finally starting to put more money aside for retirement. From that perspective, their results seem to be even more striking. Coe & Webb (2010) deserve credit for presenting the first empirical study that explicitly tracks households with children before and after a move-out. However, their evidence is based on a non-representative sample with a relatively low number of observations. Our paper adds to the literature by analyzing the reaction in parents' consumption and savings in a representative sample with a large number of affected observations. The results are therefore not subject to selection bias with respect to age that is potentially present in the HRS data. As it turns out, our estimates are – at least partly – qualitatively different compared to the results reported in Coe & Webb (2010).

2.2 Hypotheses Development

Following the consumption smoothing rationale introduced above, a household is expected to decrease its overall consumption by the exact amount that was formerly being consumed by the child moving out. Hence, abstracting from everything else, the consumption path of a single-child household behaving that way would look like the solid black line illustrated in Figure 1. Taking it to the other extreme, parents could use all the money that is newly being available to upgrade their own lifestyle and consequently save the exact same amount as they have before. That profile is represented by the dashed red line. Hypothesis 1 (H1) complies with the black profile and reads:

H1: Households decrease consumption and increase saving after children move out.

INSERT FIGURE 1 HERE

Hypothesis 2 (H2) can also be inferred from Figure 1. The fact that the magnitude of the drop brings the household back to the same level as before the child was born means that parents do not consume any of the newly available resources post move-out and completely save them instead. The idea behind this is that parents are accustomed to a low standard of living and therefore also need fewer funds in retirement. Hence, households should save all of what had previously been consumed by the departing and per capita consumption should be below that of a similar childless household while children are still present and stay that way after they are gone. Hence:

H2: Parents do not increase per capita consumption after children move out.

Additionally, one could imagine the possible drop in consumption to be delayed due to parents financially supporting their offspring through college or during their first few years on their own. The profile is drawn as the dotted blue line in Figure 1. This will be subject to analysis under hypothesis 3 (H3):

H3: The drop in household consumption is delayed.

3 Research Design

3.1 Data

The empirical work in this paper is based on data from the German Socio-economic Panel (SOEP), a longitudinal survey conducted each year since 1984 by the "Deutsches Institut für Wirtschaftsforschung" (DIW), collecting information on the household and person level (Haisken-DeNew & Frick, 2005).

As Table 1 reveals, the original full sample contains 26,205 households (HH) and 220,562 observations (Obs.). All responses prior to the year 1992 have to be dropped, since the question for financial saving was introduced first in that year. 17,125 observations and 1,227 households are dropped because of missing or invalid values in one of the questions needed to calculate one of the dependent variables. The sample is further reduced by 5,698 observations, where missing or invalid values occur for the questions needed to calculate the independent variables, which also reduces the number of households in the sample by 544. This suffices to analyze all hypotheses except H3. In order to study the dynamics of event driven reactions, another 7,891 observations and 609 households are eliminated due to missing or invalid values in one of the lagged event variables.

INSERT TABLE 1 HERE

Different measures of saving and consumption serve as dependent regression variables in this paper. The relationship of the two is mediated by income and is projected by

$$saving = income - consumption. \qquad (1)$$

Financial saving $FS_{i,t}$ of individual household i at time t is collected in a question that reads:

> *"Do you usually have an amount of money left over at the end of the month that you can save for larger purchases, emergency expenses or to acquire wealth? If yes, how much?"*[1]

By design the question does not cover negative financial saving, i.e. drawing down wealth or taking up debt to finance a consumption level larger than the household's income. Negative saving is, from a theoretical point of view, expected in later stages of the life-cycle, when

[1] SOEP (2007a) Household question form, question 52.

households are retired and start depleting their wealth.[2] Even though empirical studies have shown that households in general do not follow this pattern (see, e.g., Bernheim, 1987, Börsch-Supan & Stahl, 1991, or Börsch-Supan, 1992), the absent possibility of stating negative savings constitutes a left-censoring at zero of the variable $FS_{i,t}$. The econometric ramifications of this issue will be discussed in section 3.2.

As the broader scheme of this paper is retirement savings, financial saving may not be sufficient to measure all contributions towards acquiring wealth, especially taking into consideration that owner-occupied real-estate accounts for 60 % of households' wealth in Germany (Coppola, 2008). Making amortization payments towards real-estate also constitutes an effort to build up resources and should not be counted as consumption. Following the approach of Fuchs-Schündeln (2008), total saving $S_{i,t}$ is constructed as the sum of financial and real saving:

$$S_{i,t} = FS_{i,t} + RS_{i,t}. \qquad (2)$$

Real saving $RS_{i,t}$, i.e. the sum of amortization payments towards real estate that is or is not owner occupied, is not directly observable from the data. Hence, it is calculated by a procedure suggested by Fuchs-Schündeln (2008).[3]

The absolute saving measure is log transformed, which yields a better model fit and makes the coefficients interpretable as percentage differences. Since a large number of observations take on the value zero, one is added to be able to include these observations after the transformation:

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[2] It could also occur at any other point in the life-cycle, e.g., when large items like a car are purchased and financed through a loan or during the occurrence of a transitory negative income shock.

[3] The SOEP provides information on the annuity payments of mortgages, the year the household moved into a house and whether it owns or rents its home. Since annuity payments consist of both amortization and interest, some assumptions have to be made in order to extract the amortization part, i.e. constant annuity amounts, equal mortgage durations and a constant interest rate. The ratio of amortization to annuity is calculated as:

$$\left(\frac{am}{an}\right)_{i,t} = \frac{1}{(1+r)^{30+1-ed_{i,t}}}$$

where r represents the assumed interest rate. Fuchs-Schündeln (2008) uses an interest rate of 8.25 % and a mortgage duration of 30 years, which is inherited in this paper. Both constitute average values for Germany. The required elapsed duration $ed_{i,t}$ of the mortgage equals the difference between the observation year t and the start date of the mortgage. If the mortgage was taken up more than 30 years ago, it is assumed that the annuity consists entirely of amortization. In case the taking up of the mortgage dates back more than 40 years, a reporting error is inferred and the median ratio of amortization to annuity is utilized. As the start date of mortgages for non-owner-occupied housing is not reported, the median ratio of amortization to annuity is employed there as well. To rule out an influence of these assumptions on the results, the regressions are rerun on measures solely based on financial saving $FS_{i,t}$. The results can be found in Table C.1 in Appendix C and do not change the conclusions.

$$\log(S_{i,t}) \cong \log(S_{i,t} + 1) \quad (3)$$

Household-level consumption is calculated as the difference between income $I_{i,t}$ and saving $S_{i,t}$, as it is not directly observed in the data, and subsequently log transformed as well:

$$\log(C_{i,t}) = \log(I_{i,t} - S_{i,t}). \quad (4)$$

Since financial saving is left-censored at zero, saving is left-censored at real saving and consumption is consequently right-censored at income less real saving. That means, if a household consumes more than it earns, its consumption is observed to be equal to its income after deduction of amortization payments.

In order to put saving into proportion with different levels of income, the ratio of saving to income, the saving rate, will be one of the dependent variables in this paper:

$$SR_{i,t} = \frac{S_{i,t}}{I_{i,t}}. \quad (5)$$

The denominator in this equation, net disposable income $I_{i,t}$, is defined here as the cumulated income of all members of the household that is available for consumption or saving, i.e. net of taxes and social expenses, per month. The corresponding question in the SOEP reads:

> *"If you take a look at the total income from all members of the household: how high is the monthly household income today? Please state the net monthly income, which means after deductions for taxes and social security. Please include regular income such as pensions, housing allowance, child allowance, grants for higher education support payments, etc. If you do not know the exact amount, please estimate the amount per month."* [4]

In an attempt to approximate per capita consumption, household consumption is divided by different equivalence scales. The first and most basic equivalence scale is calculated as the sum of all household members:

$$EQS_A = No.of\ Adults + No.of\ children. \quad (6)$$

Since that overestimates the impact of children, an additional equivalence scale proposed by Citro & Michael (1995) is employed, which puts a weight of 0.7 to children and assumes economy of scale effects of 0.7:

[4] SOEP (2007a) Household question form, question 51.

$$EQS_B = (No.of\ Adults + 0.7 \times No.of\ children)^{0.7}. \qquad (7)$$

A third measure takes into account the age of children by multiplying the number of children by a weight that linearly grows from zero to one until the oldest child turns 18.[5] This hinges on the assumption that the age gaps between children are narrow but it should nevertheless come as an improvement over simply giving children of all ages the same weight. The scale parameter is inherited from the Citro & Michael (1995) version.

$$EQS_C = (No.of\ Adults + Age\ factor \times No.of\ children)^{0.7}, \qquad (8)$$

$$Age\ factor = min\left(\frac{Age\ of\ oldest\ child}{18}; 1\right). \qquad (9)$$

Even though all of these measures are based on the same question, using all of them and comparing the results still yields two important advantages. First, it serves as a robustness check, as results that can be deduced regardless of the specification are more reliable – especially in light of the specific econometric issues that the censoring of the saving variable brings with it. And second, it may entail additional insights, as looking at changes in absolute saving or equivalence scale adjusted consumption may lead to different results than concentrating solely on the saving rate. Table 2 gives a brief overview of descriptive statistics of the left-hand side variables.

INSERT TABLE 2 HERE

The right-hand side variables of interest in this paper refer to the event of children moving out of a household. Respondents are asked on the individual question form:

> *"Has your family situation changed after* December 31, *[two years back]?*
> *Please indicate if any of the following apply to you and if so, when this change occurred.[…]*
> *My son or daughter left the household: [yes/no]*
> *in [previous year] in month [__]*
> *in [current year] in month [__]"* [6]

[5] An s-shaped weighting scheme was tested as well, but yielded no significant improvement in the model fit and did not change any of the conclusions.

[6] SOEP (2007b) Individual question form, question 148.

The corresponding right-hand side dummy variable is called mo_{t-l}, where l indicates the number of lag periods. A plus-sign as in mo_{t-l+} denotes that the move-out has occurred l *or more* periods ago and consequently depicts a state dummy variable ("child has moved out").[7] A further distinction is being made between the last child exiting the household ($mo_{\cdot}^{LC}$) and those leaving siblings remaining in the household ($mo_{\cdot}^{NLC}$). Further detailing the notion of the sequence of move-outs, they are differentiated by the total number of children a household has and the order of move-outs, e.g., the first of two and the second of two children, denoted by $mo_{\cdot}^{1/2}$ and $mo_{\cdot}^{2/2}$.

INSERT TABLE 3 HERE

Table 3 summarizes the number of occurrences of the different move-out variables, dissected by number of children and order of move-outs. They are presented as event dummies for a one year lag. Taking the sum of the first row gives a total number of move-outs of 4,049, 1,554 of which are imputed by the procedure described above. Additionally, state dummy versions of the one year lag are presented. A total number of 52,834 observations have one or more of the state dummies equal to one or in other words have experienced a move-out.

Since the move-out of children is not the only event to potentially influence the saving behavior of a household, other events are included as well in an attempt to explain more event-driven heterogeneity of the left-hand side variables and thus improve the explanatory power of the econometric model. These events include the death of a spouse or partner and separation from spouse or partner.

All event variables constitute an exception with regards to the sample size, as, in order to derive their state ("event has occurred l *or more* years ago") and lagged ("event has occurred l years ago") versions, the full sample starting in 1984 is used. Consequently, if, e.g., a child moves out in 1991, that event is still included in the analysis, which starts in 1992, either as $mo_{1992-1} = 1$ or, e.g., $mo_{1992-0+} = 1$. This makes the data much more accurate. Nonetheless, there will still be some households, where children have already moved out before 1984, who stay in the SOEP until 1992 and beyond. For these households state dummies can still be derived as described above, but lagged dummies that require knowledge of the exact point in time when the move-out

[7] In order to avoid omission of a large number of observations with missing values, an imputation procedure, described in Appendix A, is applied.

has occurred are not derivable and hence, these observations cannot be included in the lagged analysis.

Four dummy variables indicate the total number of children a family has, i.e. one, two, three or four or more. A household is not downgraded after children move out, as the corresponding effect is already captured by the aforementioned move-out variables.

INSERT TABLE 4 HERE

The age of children has been shown to be positively related to their consumption needs and ultimately household consumption (see, e.g., Espenshade, 1974 or Browning & Ejrnæs, 2009). Therefore, the age of the oldest child living in the household is included by means of a dummy variable for children aged zero to twelve. Children older than twelve make up the base case where the dummy takes the value zero.

Alongside the number of children, the number of adults living in the household is controlled for as well, with couples marking the base case, singles receiving a separate constant and gender of single household heads being controlled for via a constant for female singles. Adult inhabitants in excess of two, i.e. excluding adult children, enter the regression linearly in a count variable.[8]

Additional control variables include whether or not the household head has a college education, is unemployed or self-employed, is retired or has health concerns. A dummy for homeownership is included as well. Income from assets in the form of a dummy variable is used as a proxy for wealth,[9] as the latter is not directly observable in the data.

Furthermore, observations are divided into twelve age groups, with each group comprising five years and the bottom and top group consisting of household heads younger than 26 and older than 75 respectively.[10]

Observations are classified into three income groups. The low income group consists of the bottom quartile, the medium income group contains the two middle quartiles and the high income

[8] We refrain from using additional dummies due to low numbers of affected observations, i.e. 1,456 households with three and 950 with more than three resident adults.

[9] Income from assets is calculated as the sum of interest payments, dividends and rental and lease income less related expenditures per month. Including a larger number of dummy-groups as well as linear or log-linear variables for income from assets does not significantly improve the model fit nor does it yield additional insights.

[10] A specification with age and squared age yields a significantly reduced likelihood, which is why this dummy variable solution was chosen. Different group intervals were tried as well, with this specification proving most robust and most convenient, as it can be carried over to the graphical analysis in section 4.

group the top quartile. The groups do not only receive a separate constant, but separate logarithmic slope variables with coefficients subject to estimation as well, in order to account for possible intra-group heterogeneity.[11]

All monetary values are adjusted to represent year 2005 Euros by means of the consumer price index (CPI) provided by the Federal Statistical Office of Germany. Pre 2002 monetary values denominated in Deutschmarks (DM) are recalculated to Euros (EUR) using the irrevocable conversion rate of 1 EUR = 1.95583 DM set by the European Central Bank on December 31st, 1998.

3.2 Regression Model

As explained in the previous section, a case of data censoring is in effect, as some of the observed values in the saving question are labelled zero even though the real value may be below zero.

This feature is only due to the nature of the survey and in particular the framing of the question for financial saving. This has some important econometric consequences, as we want to conduct inference on the unobserved latent variable $SR^*_{i,t}$ with only its left-censored version

$$SR_{i,t} = \begin{cases} RS_{i,t}/I_{i,t} & if\ SR^*_{i,t} \leq RS_{i,t}/I_{i,t} \\ SR^*_{i,t} & if\ SR^*_{i,t} > RS_{i,t}/I_{i,t} \end{cases} \qquad (10)$$

being observed. Real saving over income constitutes the left boundary for each observation, since – if the household indicates zero financial saving – it could still save by making annuity payments on real assets.

Similarly, log saving features a left boundary at log transformed real saving plus one:

$$log(S_{i,t}) = \begin{cases} log(RS_{i,t}+1) & if\ S^*_{i,t} \leq\ RS_{i,t}+1 \\ log(S^*_{i,t}) & if\ S^*_{i,t} > RS_{i,t}+1 \end{cases}. \qquad (11)$$

For the consumption measures, the censoring occurs from the right. Since the natural logarithm is used for the regressions and consumption is censored at income less real saving, as described in section 3.1, the left-hand side variable ends up as

[11] Specifications with polynomials of income and different choices of classification intervals were tried as well, with the solution above representing the one with the best trade-off between improving the model fit and limiting the number of included variables.

$$log(C_{i,t}) = \begin{cases} log(C_{i,t}^{*}) & if\ C_{i,t}^{*} < I_{i,t} - RS_{i,t} \\ log(I_{i,t} - RS_{i,t}) & if\ C_{i,t}^{*} \geq I_{i,t} - RS_{i,t} \end{cases}. \qquad (12)$$

For the equivalence scale adjusted per capita measures, consumption as well as its censoring values are simply divided by the equivalence scale before being log transformed.

Tobit Type I models constitute the appropriate solution when dealing with data censoring (Tobin, 1958). Since the SOEP is of longitudinal nature, panel techniques are used to exploit the full information content of the data. For Tobit models, a random effects estimator is a popular choice when dealing with panel data and when modeling the saving rate in particular.[12] Fixed effect approaches can suffer from incidental parameter problems (Neyman and Scott, 1948), inconsistent estimation of the disturbance variance (Greene, 2004), and are generally difficult to solve when the number of individuals is large and the number of time periods is limited.[13]

4 Descriptive Analysis

The life-cycle of consumption for the median household by the number of children is presented in Figure 2. The "hump-shape" that was discussed earlier is clearly visible and significantly more pronounced for households with children. Income is plotted as the dotted grey line in order to assess the degree of income tracking. It becomes quite apparent that it does at least play some role in creating the "hump-shape". Interestingly, childless households actually do quite a good job of smoothing consumption especially late in life, while households with children experience a sharp fall starting around the ages of 46 to 55. This may be interpreted as households actually shrinking consumption when children leave. Families with one or two children consume more than childless ones until the age of 75. Households with children whose head is older than 75 experience a sharp drop in consumption. This could be related to stronger bequest motives and consequential higher saving efforts in older ages. In contrast to comparing slopes in the figure, comparisons in the level of consumption have to be made with care, as households with more children in this data set are shown to earn more. Thus, regression results, where income is controlled for, should be more informative in that respect.

[12] See, e.g., Corneo et al. (2010), Fuchs-Schündeln (2008) and Guariglia (2001) for examples of random effects Tobit models for the saving rate.

[13] Fixed effects results acquired from a trimmed least squares estimator, proposed by Honoré (1992), do not deviate dramatically, albeit coefficients exhibiting reduced magnitudes. Furthermore, fewer are significant – in particular those for child-move-outs of families with more than two children. The results can be found in Table C.2 in Appendix C. They are not used as the main source of inference, since the estimator is only shown to perform well in small samples. Additionally, it is only feasible for left-censoring at zero. Hence, results for log financial saving and the financial saving rate represent the only viable options for the dependent variable.

INSERT FIGURE 2 HERE

Median per capita consumption, calculated by dividing by the linearly age adjusted equivalence scale (EQS_C), introduced in section 3.1 and plotted as the dashed curves, is illustrated in Figure 3. The "hump" in consumption is again clearly visible for the childless household. This is evidence of something else but demographics – e.g., income – causing this pronounced shape. Households with children are not able to increase per capita consumption to that degree earlier in life. While levels are again to be judged with care,[14] changes in slopes around the time children leave should be focused on. It becomes apparent that per capita consumption does not increase by the time when the last child leaves but instead the slopes converge to that of childless households.

INSERT FIGURE 3 HERE

Focusing on what happens right around the time when the household experiences a move-out, Figure 4 presents a boxplot of consumption around the time of a move-out. If the notches of two adjacent boxes do not overlap, it can be interpreted as strong evidence of their respective medians differing (Chambers, 1983). This is evidently the case when comparing consumption of the year of the move-out with the directly following year. Limiting the analysis to those move-outs of the last child in the household only (not displayed here) yields an even more pronounced visible effect. Overall this can be viewed as a substantial indication in favor of H1. Households seemingly do adjust consumption downwards following a child's departure. Less pronounced but still visible is a downwards sloping trend in the following years. Also, all observations that had experienced a move-out eight or more years back, consume distinctly less than those for whom the event dates back seven years.[15]

INSERT FIGURE 4 HERE

5 Regression Results

5.1 Baseline Results

The baseline regression results are presented in Table 5. The first column displays the coefficients for log transformed consumption, the second one results for log transformed saving and the third one results for the saving rate as the dependent variable. Significant likelihood ratio

[14] In addition to the lack of income adjustment, the simple linear age adjusted equivalence scale likely overestimates the weight of children early in life.

[15] It has to be noted, that many households for whom the event dates back eight or more years are retired.

tests comparing the models with respective pooled Tobit models[16] (LR-Test ($\sigma_{\mu_i} = 0$)) elucidate the superiority of the panel model.

INSERT TABLE 5 ABOUT HERE

The baseline regression specification contains one-year-lagged[17] state move-out dummies according to the number of children a household has and the order of move-outs, i.e. the first child of two has moved out one year ago ($\mathrm{mo}_{t-1+}^{1/2}$) etc. For all three left-hand side variables the likelihood ratio test of the joint significance of all seven move-out dummy coefficients (LR-Test ($\beta_{\mathrm{MO}} = 0$)) indicates that including the dummies significantly improves the model's likelihood.

Looking at log saving as the dependent variable first, the coefficients for an only child that has left the household amounts to 0.4742 and is statistically significant at the 0.01-level. So the household saves about 47 % more after the child has left. [18] For households with more than one child, the last child exiting also yields a coefficient of similarly high magnitude and statistical significance. Summing up the coefficients for a two children household leads to a total percentage increase in saving after all children have left of 61 %. Applying the same procedure to a three-child household yields a 62 % increase in saving. For four or more children, only the last child exiting is captured, since families of up to eight children exist in the data and including that many dummy variables for a relatively small number of affected observations inflates result tables without providing additional significant insights. Nonetheless, even for this relatively scarce case, the last child exiting leads to a significant boost in saving of 57 %.

When the logarithm of consumption is the dependent variable, the signs of the dummy coefficients change and thus the conclusions essentially remain the same. Consumption decreases when children move out and the effect increases in the number and order of move-outs. Looking at the saving rate as a relative measure, the effect is also statistically significant and large in magnitude with cumulated percentage point increases of 3.04, 4.63, 3.87, and 3.07 for one-, two-, three-, and four-or-more-children households respectively. All in all, the evidence above clearly speaks in favor of H1: Households increase saving and decrease consumption after their children move out.

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[16] Pooled Tobit models are solved using the estimator introduced by Amemiya (1973).

[17] A one year lagged version is chosen based on the findings of the graphical analysis presented in section 4 and proves superior in comparisons with different specifications.

[18] Since saving and consumption are log transformed, coefficients for dummy variables in the first two columns can be interpreted as percentage changes.

A short example should further improve the understanding of these results. Assuming a single-child household earns 5,000 € and saves 10 % of that or 500 € each month, the results suggest a decrease in consumption of about 3.13 % after the move-out of their daughter or son. Hence, 4,359 € are being consumed ex-post, which essentially amounts to 141 € less.[19] It is not too far-fetched to assume that the child had caused expenditures in excess of 141 € each month, so most likely, parents also use some of that unknown amount for personal consumption or for supporting their offspring even after they are gone. In order to assess the impact of the support payment argument, these payments are subtracted from consumption before log transformation.[20] The resulting move-out dummies are strictly larger, in fact around twice as large in magnitude and moreover all statistically significant at the 0.01 level. In the example above it would lead to a decrease in consumption of 306 €, so more than twice than without accounting for the support payments.

Comparing the move-out coefficients to the children dummies which indicate how much less a household with, e.g., one child saves compared to a childless household also reveals an interesting fact. The sum of the child coefficient and the move-out coefficient, e.g., for a one-child household essentially predicates the difference in the dependent variable after all children have moved out compared to an otherwise equal household that never had children. For the one-child household that amounts to -0.0981 for log saving, 0.0045 for log consumption and -0.0052 for the saving rate respectively. Hence, households with children continue to consume more, ergo save less than comparable childless households after their offspring has left, but they do converge. So the drop in consumption does not fully correspond to the magnitude of the children dummy. It has to be noted however, that the reduction in consumption in effect amounts to 88 % of what had previously been attributed to the child in the regression for the one-child family. For the two, three and four or more children household 99 %, 61 % and 40 % is neutralized post move-out respectively. So in terms of magnitude and economic significance the results are definitely meaningful. At least the one- and two-children households reduce most consumption that could be attributed to the children exiting and consequently almost level their consumption with childless peers. Households with more children seem to have a harder time doing so.

[19] Calculating the same example with the results acquired from the saving rate specification leads to a similar amount, while the log saving specification suggests a larger effect with an increase of 237 €.

[20] The results can be found in Table C.3 in Appendix C.

Nonetheless the effect that parents are used to a less expensive lifestyle and hence need less after children have left cannot be observed here. There is absolutely no evidence of households reducing consumption to a level below that of childless households. So in short, H1 can be confirmed, as households do save more when children move out. The near zeroing out of the children coefficients should not be confused with households saving all funds that are now being available. Instead, it only means, that households now consume in a similar order of magnitude as comparable childless ones. In order to genuinely assess the share of saving of what had formerly been spent on children, specific data on the composition of household consumption would be needed. Consequently, all that can be inferred is that the alternative of H1, i.e. continuation of the same household consumption level, can be rejected.

Shifting the focus to the coefficients of the control variables, a familiar picture compared to related literature is drawn. Concentrating on the log consumption column first, singles consume 3.06 % less than couples. One, two three or four or more children give rise to an increase in log consumption of 0.0372, 0.0526, 0.0686 and 0.0703 compared to an otherwise equal childless household. Older children strain household consumption more than younger ones, as can be inferred from the coefficient of -0.0056 for households whose oldest child is younger than 13. As for income, the slope coefficients can be interpreted as the elasticity, since both variables are log transformed. So a 1 % increase in income leads to an increase between 0.8990 % and 0.9159 % in consumption for all three income groups, clearly suggesting a contribution of income-tracking to the "hump-shaped" life-cycle consumption path. In the log saving column, income elasticity of saving decreases from the lowest to the highest income group. Households who obtain some part of their income from assets generally save more, with a 1.6 percentage point (pp) increase in the saving rate or a 35 % raise in absolute saving.

The death of a partner, an event that also changes the household composition, entails significant positive changes in saving. Parental separation implies less saving, i.e. after accounting for changes in income and other variables that coincide with that event.

To further test the robustness of the model, it is augmented with a number of interaction terms attached to the move-out variables. The coefficients remain in close range in terms of magnitude and significance. Furthermore, plausible effects, such as stronger upturns in saving for parents of children who move out at relatively old ages can be observed.[21]

5.2 Per Capita Consumption

Next, the focus is shifted to H2, i.e. whether parents increase per capita consumption after their offspring leaves. Regressions on three equivalence scale adjusted left-hand side variables introduced in section 3.1 shed some light on this question. Table 6 contains the results, not presenting the control variables in order to concentrate on the variables of interest. All coefficients of interest are significant at the 0.01 level and carry positive signs.

All three specifications reveal that parents do lead a more Spartan life than childless peers in terms of personal consumption, as coefficients for any number of children are negative.

INSERT TABLE 6 ABOUT HERE

Simply dividing by the number of household inhabitants, i.e. employing $\mathrm{EQS_A}$, obviously understates economies of scale and age effects. Nonetheless, summing up the respective move-out dummies by family size and comparing it to the effect of the number of children, reveals that it approximately zeros out. So parents consume less personally in the presence of children but they catch up once children are gone and consequently consume about the same as an otherwise comparable household in terms of the other control variables. The effect can still be observed with the Citro & Michael (1995) equivalence scale (EQS_B), which also yields the highest likelihood. With the age adjusted equivalence scale EQS_C, parents actually consume slightly more than their peers in their post children years.

So parents do make up for their frugality after children are gone, which is well reconcilable with the results from section 5.1, where it was shown that household level consumption drops, but at most to the level of a comparable childless household. In essence this means that parents use the newly available funds to save significantly more and upgrade their lifestyle to approximately the level of their childless comparison group at the same time. Hence, H2 cannot be rejected and the truth lies somewhere between the solid black and dashed red line from Figure 1.

One could argue that part of this upgraded lifestyle is due to an oversized dwelling after the reduction in inhabitants. Also, if parents support their children in the post-move-out years, this

[21] The results are presented and discussed in Appendix B.

would be counted as parental consumption in the setting above. Subtracting housing costs and support payments from consumption before dividing by the different equivalent scales and log transforming the dependent variables dissents that idea.[22] The conclusion of an upturn in parental consumption approximately to the level of childless peers does not change even if housing costs and payments to non-resident children are subtracted.

5.3 Dynamics of the Reaction to a Move-Out

For the purpose of analyzing H3, i.e. whether or not there is a delay in the reaction to a move-out, a regression equation including lagged move-out dummies is set up. In order to avoid an abundance of variables, the analysis focuses on the last child moving out of a household. Five lag dummies from a move-out in the same year (mo_t^{LC}) to a move out that has occurred four years ago (mo_{t-4}^{LC}) and one state dummy for exits that have occurred five or more years ago (mo_{t-5+}^{LC}) are employed.[23] Additional dummies are introduced for university graduates, as differences in their saving behavior post move-out seem plausible, based on the assumption of a positive correlation of parental education with children's tertiary education costs.

For all three specifications the coefficient for the year of the move-out is not significant and has the opposite sign than expected. Hence, if the move-out has occurred within twelve months, no immediate reaction can be ascertained. In the consumption specification, a gradual increase in the negative reaction can be observed until the third year after the departure. After a small bump in year four the steady state reaction of 3.33% is reached, with a small standard error of 0.0027. For log saving, the increase in the reaction comes in stages of two years, with a notable jump to the steady state. The saving rate confirms the gradual increase until year three, the bump in year four and a steady state similar to the third year's level of reaction. Overall the evidence suggests a retarded, increasing reaction in the first three years and a relatively stable significant steady state starting in year five.

INSERT TABLE 7 ABOUT HERE

In order to arrive at the separate reaction for university graduates, their specific dummy coefficients have to be added to the regular ones. Apart from the insignificant value for the year of the move-out, all other coefficients have the opposite sign of the regular ones. Hence, the

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22 The results can be found in in Table C.4 in Appendix C.

23 Increasing the number of lagged dummies and shifting the state dummy to a later period does not yield any additional insights.

reaction is apparently reduced. In case of year two that reduction is insignificant, but for the first, third and fourth year it amounts to 63 %, 87 % and 86 % of the regular reaction in the log consumption column. The latter reinforces the idea of university graduates supporting their children post move-out and consequently experiencing a smaller savings boost. For the steady state starting in year five, university graduates react 37 % less than other subjects. So their long-term reaction is smaller as well. Comparing the results with the two other specifications corroborates the findings, even though log saving actually yields insignificant negative combined coefficients for the one-, three- and four-year lags for university graduates.

INSERT FIGURE 5 HERE

Figure 5 shows the coefficients of the reaction in log-consumption to the move-out and their 95 % confidence intervals by education. The aforementioned difference in the reaction of university graduates as well as a steeper decrease from the fourth year to the steady state for the latter are clearly discernible.

Subtracting support payments from parents to non-resident children in the log-consumption specification leads to an insignificant difference in effects for university graduates, as can be seen in Figure 6.[24] This leads to the conclusion that these households indeed support their children more extensively after they are gone.

INSERT FIGURE 6 HERE

Summarizing, the reaction in consumption and saving after all children have moved out is indeed delayed as proffered by H3. The delay is significantly more pronounced for university graduates, who also adjust their consumption to a lesser extent in the long run. This effect vanishes when support payments are subtracted.

6 Conclusion

The goal of this paper is to improve the understanding of households' saving and consumption behavior around the time when children move out. In contrast to Coe & Webb (2010), we show that household level consumption drops and saving rises significantly one year after the occurrence of the event. The effect is most pronounced for the last child, but even the first of two and the second of three children exiting involve a significant upturn in saving. On the per capita

[24] The corresponding regression results can be found in Table C.5 in Appendix C.

level, parents were shown to consume less personally during the period when children live with them than childless households. After all children are gone, their consumption is leveled with that of their childless peer group. In essence, households were shown to use the newly available funds for a significant increase in saving and at the same time for an upgrade of their own personal lifestyle.

The timing of the effect was also subject to investigation. In general, the effect is slightly delayed and reaches a steady state level approximately four years after the move-out. For university graduates, who are shown to generally react less pronouncedly, the effect also proves to be delayed longer – which is shown to be related to their children requiring more expenditure even in the post-move-out years.

These results entail a number of implications. First of all, parents do react to children moving out in a non-negligible manner. Consequently, the event of children moving out should be incorporated when attempting to assess the adequacy of saving rates. Assuming that household consumption remains constant after a child's move-out would overstate the problem of inadequate saving. As for the "hump-shape" observed in life-cycle consumption data, the results from this paper reinforce the importance of demographics as one major cause for this phenomenon. Some of the fall in consumption for middle-aged parents should be attributed to the reduced number of household inhabitants.

Nevertheless, parents level their per capita consumption up to that of childless peers, who have accumulated much more wealth earlier in their lives. So late in life, their resources will be more limited and they will not be able to continue with their accustomed lifestyle in general. Hence, even though there is a reaction after children move out, it may not be enough. Affected households will likely need to save more in order to make up for the smaller efforts earlier in life, if they want to continue to experience the lifestyle that they exhibit in this study. If they do have stronger bequest motives, which are reconcilable with the results acquired here, the problem will be even more severe.

On a final note, parents seem not to settle for peanut butter once their children are gone. After all, some fine wine may be well-deserved.

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Figures and Tables

Figure 1: Possible consumption profiles for a household with one child

The black profile represents a household that decreases consumption to the pre-child level upon move-out, whereas the dotted blue profile adds a delay to the reaction. The dashed red profile displays a household that shows no reaction in consumption to the child moving out.

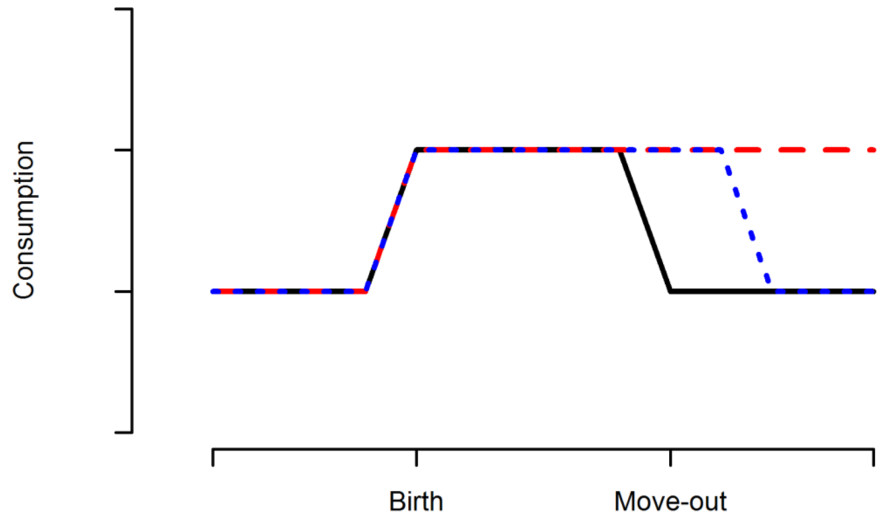

Figure 2: Median life-cycle consumption by number of children

Median consumption is presented by number of children for different age-groups. Age groups comprise five years of age (except for the first and last one) and permit a noise-reduced view of life-cycle consumption. Median income is additionally presented as the dashed grey line in order to assess the role of income tracking.

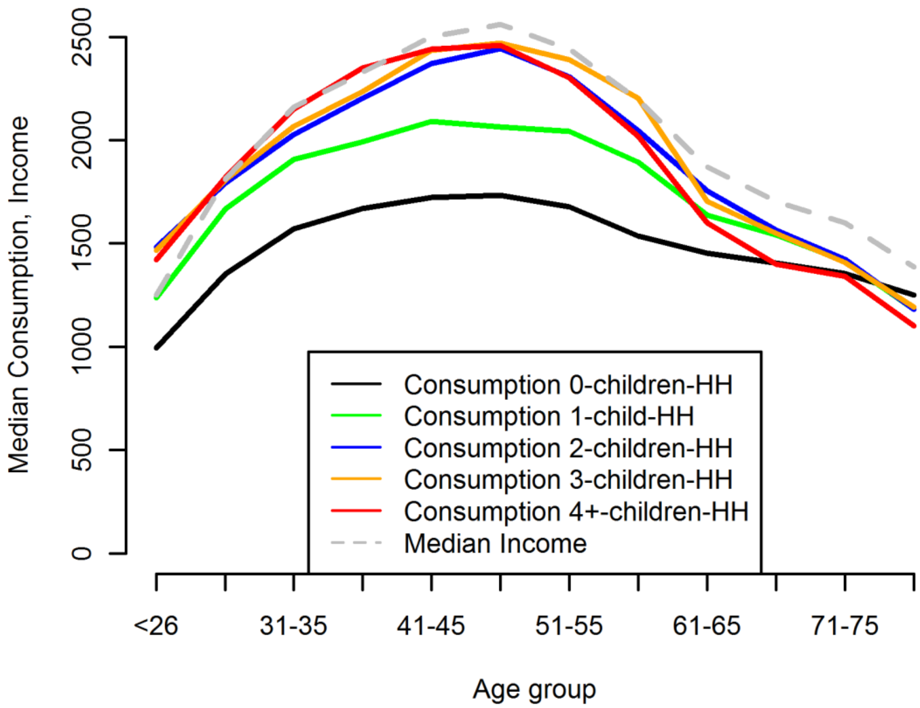

Figure 3: Median life-cycle per capita consumption and mean age adjusted EQS by number of children

Median per capita consumption is presented by number of children for different age-groups. Age groups comprise five years of age (except for the first and last one) and permit a noise-reduced view of life-cycle consumption. Per capita consumption is approximated by dividing by an age adjusted equivalence scale as introduced in section 3.1. The mean equivalence scales are printed as the dashed lines to indicate the corresponding household compositions over the life-cycle.

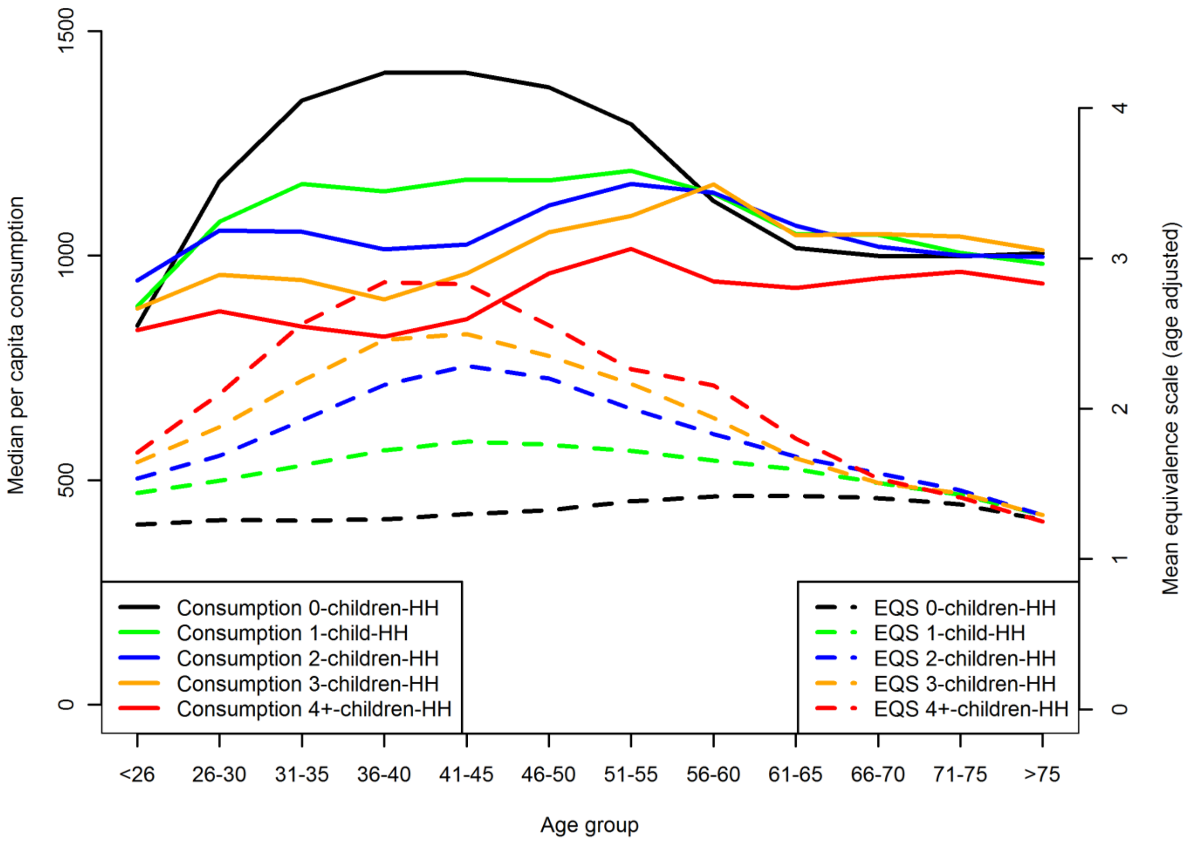

Figure 4: Boxplot of consumption around the time of a child moving out

The boxplot displays consumption for the year before, the year of and seven years subsequent to a move-out of a child as well as for all observations where a move-out has occurred eight or more years ago.

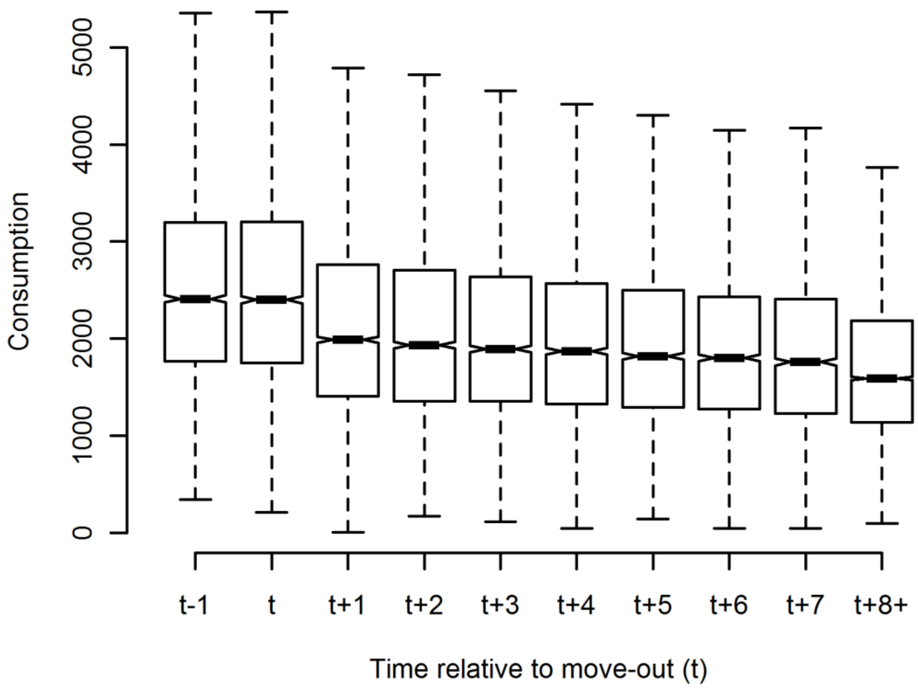

Figure 5: 95%-Confidence intervals of lagged move-out coefficients for changes in log-consumption

The figure displays the point and interval coefficient estimates for reactions in log-consumption of a move-out of the last child of a household in the year of the move-out (t), the four subsequent years (t-1 to t-4) and for move-outs that have occurred 5 or more years ago (t-5+). A distinction is made between university graduates and those without a university degree.

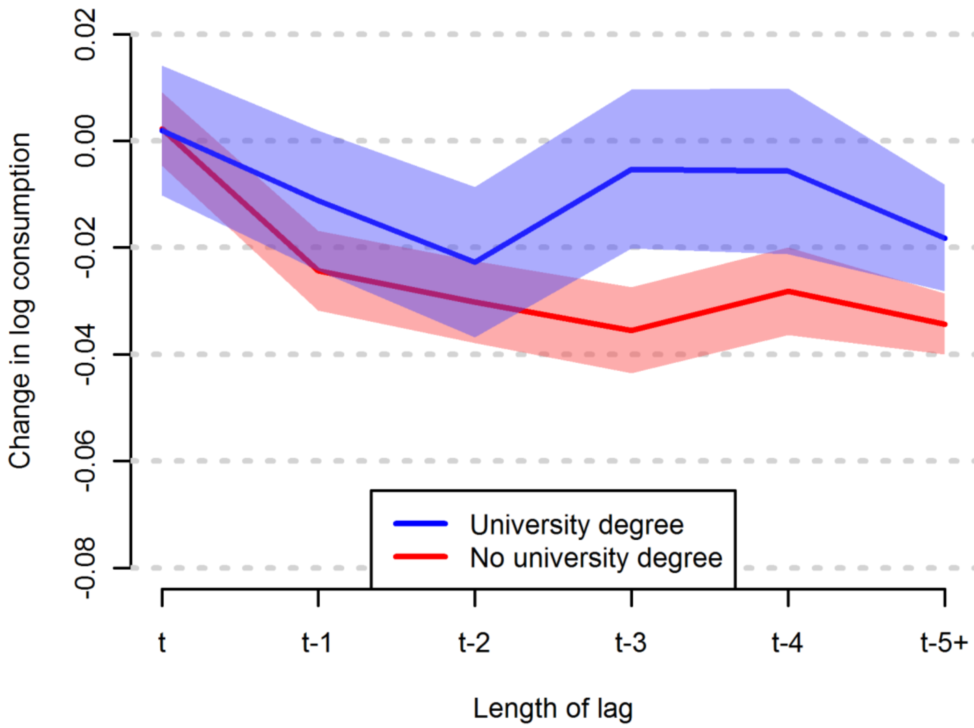

Figure 6: 95%-Confidence intervals of lagged move-out coefficients for changes in log consumption excluding support payments to non-resident children

The figure displays the point and interval coefficient estimates for reactions in log-consumption excluding support payments to non-resident children of a move-out of the last child of a household in the year of the move-out (t), the four subsequent years (t-1 to t-4) and for move-outs that have occurred 5 or more years ago (t-5+). A distinction is made between university graduates and those without a university degree.

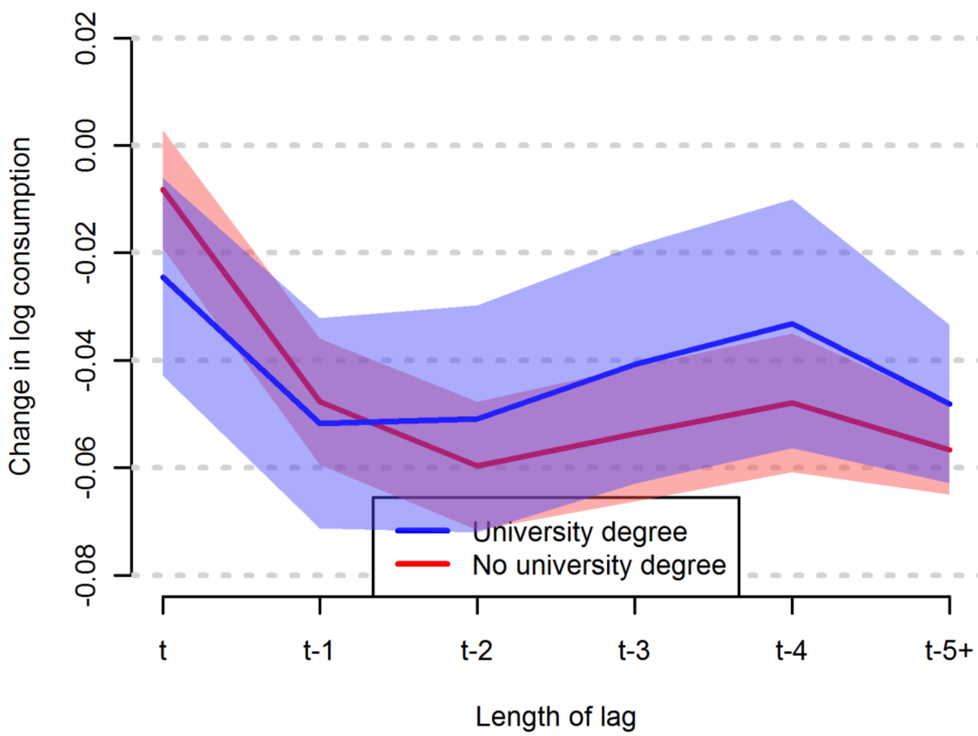

Table 1: Composition of different sample sizes

The table documents the derivation of the different samples used for the analyses starting from the original SOEP sample. It furthermore indicates the number of households and observations dropped in each step and those remaining in each sample.

	No. of HH	No. of Obs.
Original SOEP sample of period 1984 – 2009	**26,205**	**220,562**
- Observations prior to 1992	-2,845	-44,381
- Observations with missing or invalid values in dependent variables	-1,227	-17,125
- Observations with missing or invalid values in independent variables	-544	-5,698
Final sample for baseline analysis	**21,589**	**153,358**
- Observations with missing values in lagged event variables	-609	-7,891
Final sample for dynamics analysis	**20,980**	**145,467**

Table 2: Descriptive statistics of left-hand side variables

Saving ($S_{i,t}$), consumption ($C_{i,t}$) as well as the equivalence scale adjusted consumption measures ($C_{i,t}/EQS_{.}$) are log-transformed in the analyses but their descriptive statistics are presented here before transformation for the purpose of convenient interpretation.

Variable	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max.**
$SR_{i,t}$	0.1060	0.0767	0.1180	0	0.9930
$S_{i,t}$	301.4977	156.4129	605.0649	0	57,989.8400
$C_{i,t}$	2,062.0980	1,793.9680	1,274.7360	5.9912	86,643.7100
$C_{i,t}/EQS_A$	945.4936	816.2723	635.7711	2.9956	67,361.8400
$C_{i,t}/EQS_B$	1202.8260	1067.0280	714.7627	3.6880	67,361.8400
$C_{i,t}/EQS_C$	1200.0470	1068.6530	709.1431	3.6880	67,361.8400

Table 3: Number of affected observations for move-outs

The table displays the number of affected observations in the final sample for baseline analysis for move-outs of children by chronological order of move-outs and total number of the household's children. $mo_{.}^{LC/4+}$ stands for the move-out of the last of four or more children.

Variable	$mo_{.}^{1/1}$	$mo_{.}^{1/2}$	$mo_{.}^{2/2}$	$mo_{.}^{1/3}$	$mo_{.}^{2/3}$	$mo_{.}^{3/3}$	$mo_{.}^{LC/4+}$
	No. of Obs.	No. of Obs.	No. of Obs.	No. of Obs.	No. of Obs.	No. of Obs.	No. of Obs.
$mo_{t-1}^{.}$	935	1,086	1,099	229	252	302	146
$mo_{t-1+}^{.}$	15,800	24,599	16,956	9,370	7,355	5,336	3,065

Table 4: Number of observations and households by number of children

The table indicates the number of households and observations with no, one, two, three and four or more children in the final sample for baseline analysis.

Variable	No children	1 child	2 children	3 children	4+ children
No. of HH	7,452	4,812	6,354	2,088	993
No. of Obs.	47,565	36,753	47,880	14,317	6,843

Table 5: Estimation results for baseline specification

Random effects Tobit estimation results for regressions of three different left-hand-side variables, i.e. log consumption ($\log(C_{i,t})$), log saving ($\log(S_{i,t})$) and the saving rate ($SR_{i,t}$) are presented in this table. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($mo_{t-1+}^{1/1}$ etc.). The table further documents coefficients for the control variables, the constant coefficient, estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Year, age and cohort dummies are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	**$\log(C_{i,t})$**		**$\log(S_{i,t})$**		**$SR_{i,t}$**	
No. of Obs.	153,358		153,358		153,358	
No. of HH	21,589		21,589		21,589	
Log-Likelihood	46,689.25		-276,054.52		34,473.61	
LR-Test ($\sigma_{\mu_i} = 0$)	39,000.00 ***		40,000.00 ***		45,000.00 ***	
LR-Test ($\beta_{MO} = 0$)	393.56 ***		214.91 ***		385.16 ***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$mo_{t-1+}^{1/1}$	-0.0327	(0.0027)***	0.4742	(0.0493)***	0.0304	(0.0025)***
$mo_{t-1+}^{1/2}$	-0.0095	(0.0025)***	0.0634	(0.0445)	0.0074	(0.0022)***
$mo_{t-1+}^{2/2}$	-0.0423	(0.0030)***	0.5468	(0.0543)***	0.0389	(0.0027)***
$mo_{t-1+}^{1/3}$	-0.0064	(0.0047)	-0.1969	(0.0861)**	-0.0015	(0.0044)
$mo_{t-1+}^{2/3}$	-0.0140	(0.0053)***	0.3330	(0.0980)***	0.0157	(0.0050)***
$mo_{t-1+}^{3/3}$	-0.0213	(0.0052)***	0.4823	(0.0966)***	0.0245	(0.0049)***
$mo_{t-1+}^{LC/4+}$	-0.0278	(0.0057)***	0.5723	(0.1082)***	0.0307	(0.0056)***
Parents split$_{t-1+}$	0.0140	(0.0021)***	-0.3258	(0.0387)***	-0.0180	(0.0020)***
Death of Partner$_{t-1+}$	-0.0158	(0.0028)***	0.2236	(0.0515)***	0.0169	(0.0026)***
Single	-0.0306	(0.0021)***	0.5092	(0.0385)***	0.0341	(0.0019)***
Single × Female	0.0120	(0.0023)***	-0.0055	(0.0428)	-0.0071	(0.0022)***
No. of add. Adults	0.0111	(0.0020)***	-0.2099	(0.0360)***	-0.0118	(0.0018)***
1 child	0.0372	(0.0020)***	-0.5723	(0.0368)***	-0.0356	(0.0018)***
2 children	0.0526	(0.0023)***	-0.8525	(0.0415)***	-0.0526	(0.0021)***
3 children	0.0686	(0.0035)***	-1.2149	(0.0653)***	-0.0727	(0.0033)***
4+ children	0.0703	(0.0046)***	-1.5774	(0.0869)***	-0.0857	(0.0045)***
Age of Child 0-12	-0.0056	(0.0017)***	0.0926	(0.0309)***	0.0068	(0.0016)***
Low Income	-0.1209	(0.0300)***	-3.4449	(0.5958)***	-0.1604	(0.0300)***
High Income	-0.0820	(0.0366)**	13.0694	(0.6512)***	0.3914	(0.0324)***
log (Low Income)	0.9159	(0.0028)***	3.7899	(0.0624)***	0.1399	(0.0032)***
log (Med. Income)	0.8990	(0.0031)***	3.3289	(0.0556)***	0.1181	(0.0028)***
log (High Income)	0.9099	(0.0034)***	1.6932	(0.0595)***	0.0690	(0.0029)***
Income from Assets	-0.0156	(0.0010)***	0.3454	(0.0182)***	0.0160	(0.0009)***
University Degree	-0.0306	(0.0019)***	0.4264	(0.0349)***	0.0286	(0.0018)***
Unemployed	0.0232	(0.0018)***	-0.9188	(0.0346)***	-0.0410	(0.0018)***
Self-employed	0.0000	(0.0024)	-0.1858	(0.0441)***	-0.0050	(0.0022)**
Retired	0.0131	(0.0021)***	-0.2949	(0.0375)***	-0.0135	(0.0019)***
Homeowner	-0.0299	(0.0014)***	1.2094	(0.0248)***	0.0238	(0.0013)***
Health-Concerns	0.0095	(0.0011)***	-0.2333	(0.0205)***	-0.0119	(0.0010)***
Constant	0.6298	(0.0249)***	-21.6003	(0.4501)***	-0.7867	(0.0226)***
σ_{μ_i}	0.1086	(0.0007)***	2.0353	(0.0148)***	0.1047	(0.0007)***
$\sigma_{\nu_{i,t}}$	0.1269	(0.0003)***	2.1888	(0.0055)***	0.1052	(0.0003)***
ρ	0.4225	(0.0036)	0.4637	(0.0038)	0.4979	(0.0038)

Table 6: Estimation results for equivalence scale adjusted consumption

Random effects Tobit estimation results for regressions of three different equivalence-scale adjusted left-hand-side variables of consumption are presented in this table. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($mo_{t-1+}^{1/1}$ etc.). The table further documents coefficients for the number and age of children control variables, estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Other control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	$\log(C_{i,t}/EQS_A)$		$\log(C_{i,t}/EQS_B)$		$\log(C_{i,t}/EQS_C)$	
No. of Obs.	153,358		153,358		153,358	
No. of HH	21,589		21,589		21,589	
Log-Likelihood	33,868.68		39,515.71		35,107.40	
LR-Test ($\sigma_\mu = 0$)	42,000.00 ***		39,000.00 ***		38,000.00***	
LR-Test ($\beta_{MO} = 0$)	52,680.83 ***		18971.88 ***		13,610.38***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$mo_{t-1+}^{1/1}$	0.4060	(0.0030)***	0.1966	(0.0028)***	0.1004	(0.0029)***
$mo_{t-1+}^{1/2}$	0.2709	(0.0027)***	0.1507	(0.0026)***	0.1633	(0.0027)***
$mo_{t-1+}^{2/2}$	0.3893	(0.0033)***	0.1827	(0.0031)***	0.0914	(0.0032)***
$mo_{t-1+}^{1/3}$	0.1572	(0.0052)***	0.0910	(0.0049)***	0.0857	(0.0051)***
$mo_{t-1+}^{2/3}$	0.2791	(0.0059)***	0.1536	(0.0056)***	0.1859	(0.0058)***
$mo_{t-1+}^{3/3}$	0.4295	(0.0058)***	0.2122	(0.0055)***	0.1260	(0.0057)***
$mo_{t-1+}^{LC/4+}$	0.8082	(0.0064)***	0.4344	(0.0060)***	0.3834	(0.0062)***
1 child	-0.4054	(0.0023)***	-0.1950	(0.0021)***	-0.0619	(0.0022)***
2 children	-0.6740	(0.0025)***	-0.3418	(0.0024)***	-0.2215	(0.0025)***
3 children	-0.8475	(0.0040)***	-0.4350	(0.0037)***	-0.3423	(0.0038)***
4+ children	-0.8213	(0.0052)***	-0.4218	(0.0048)***	-0.3427	(0.0050)***
Age of Child 0-12	0.0115	(0.0019)***	0.0044	(0.0018)**	0.1611	(0.0018)***
σ_{μ_i}	0.1246	(0.0008)***	0.1137	(0.0008)***	0.1167	(0.0008)***
$\sigma_{\nu_{i,t}}$	0.1392	(0.0003)***	0.1319	(0.0003)***	0.1365	(0.0003)***
ρ	0.4448	(0.0035)	0.4260	(0.0035)	0.4222	(0.0036)

Table 7: Estimation results for specification including lagged move-out dummies

Random effects Tobit estimation results for regressions of three different left-hand-side variables, i.e. log consumption ($\log(C_{i,t})$), log saving ($\log(S_{i,t})$) and the saving rate ($SR_{i,t}$) on lagged versions of the move-out dummies are presented in this table. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The move-out dummies that indicate the move-out of the last child of a family go from t (i.e. a move-out in the current year) to t-4 (i.e. a move-out four years ago) and also include a five-year lagged state-dummy (i.e. a move-out occurred five *or more* years ago). Furthermore, each one is interacted with a dummy variable that takes on the value one, if the household head has a university degree. The table further documents estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	$\log(C_{i,t})$		$\log(S_{i,t})$		$SR_{i,t}$	
No. of Obs.	145,467		145,467		145,467	
No. of HH	20,980		20,980		20,980	
Log-Likelihood	45,500.80		-261,694.83		32,986.74	
LR-Test ($\sigma_\mu = 0$)	38,000.00 ***		44,000.00 ***		38,000.00***	
LR-Test ($\beta_{MO} = 0$)	218.03 ***		195.21 ***		90.82***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
mo_t^{LC}	0.0018	(0.0035)	-0.0621	(0.0634)	-0.0015	(0.0032)
mo_{t-1}^{LC}	-0.0230	(0.0035)***	0.2582	(0.0655)***	0.0192	(0.0033)***
mo_{t-2}^{LC}	-0.0288	(0.0037)***	0.2539	(0.0682)***	0.0249	(0.0034)***
mo_{t-3}^{LC}	-0.0334	(0.0038)***	0.3245	(0.0710)***	0.0290	(0.0035)***
mo_{t-4}^{LC}	-0.0275	(0.0040)***	0.3267	(0.0731)***	0.0256	(0.0036)***
mo_{t-5+}^{LC}	-0.0333	(0.0027)***	0.4039	(0.0500)***	0.0303	(0.0025)***
$mo_t^{LC} \times \text{Uni}$	0.0019	(0.0071)	0.0759	(0.1272)	-0.0001	(0.0063)
$mo_{t-1}^{LC} \times \text{Uni}$	0.0146	(0.0069)**	-0.3165	(0.1241)**	-0.0156	(0.0061)**
$mo_{t-2}^{LC} \times \text{Uni}$	0.0066	(0.0074)	-0.0742	(0.1325)	-0.0070	(0.0065)
$mo_{t-3}^{LC} \times \text{Uni}$	0.0289	(0.0079)***	-0.3901	(0.1415)***	-0.0292	(0.0070)***
$mo_{t-4}^{LC} \times \text{Uni}$	0.0237	(0.0082)***	-0.5225	(0.1456)***	-0.0240	(0.0072)***
$mo_{t-5+}^{LC} \times \text{Uni}$	0.0123	(0.0050)**	-0.3427	(0.0892)***	-0.0181	(0.0044)***
σ_{μ_i}	0.1089	(0.0007)***	2.0552	(0.0152)***	0.1057	(0.0008)***
$\sigma_{\nu_{i,t}}$	0.1252	(0.0003)***	2.1804	(0.0057)***	0.1045	(0.0003)***
ρ	0.4309	(0.0036)	0.4705	(0.0039)	0.5058	(0.0038)

Appendix

A Derivation of move-out dummy variables

First, the information of the move-out question is assigned to the appropriate year, where the month of the interview is taken into account and any move-out within twelve months of the interview is counted as a move-out in that year. Anything beyond is counted as a one-year lagged move-out. That way, a child who exited in December of the previous year is treated the same way as a child who exited in January of the current year (if the interview is, e.g., in March), i.e. as a move-out in the current year. If there is a delayed reaction to the event, which will be subject to investigation by lagging the variable, it can thereby be evaluated more consistently. The omission of this procedure does nevertheless not change the results in a significant way. Observations, where the move-out question has not been answered, but where the number of children living in the household permanently decreases after fertility has been completed, receive an imputed move-out.

Since some households commence participation in the SOEP after some or all of their children have left the household, the above-mentioned question and imputation method do not suffice to correctly determine the state dummy variables. In order to not having to eliminate these observations due to missing values, the number of children currently living in the household is compared to the number of children that is stored in the biography data of the household head. That way, state dummies can be calculated. If the difference between these two numbers of children is constant for n observed years, the n-year lagged state dummies are also set accordingly. Lags smaller than n have to be branded missing, which is why the sample for the lagged analysis is smaller than the main sample, where one-year lagged move-out state dummies are being used.

B Interaction of Move-out Variables

In an attempt to identify mediating factors as well as to further test the robustness of the model, a number of interaction variables are employed. These interactions concentrate on the last child exiting in order to keep the number of coefficients manageable.

Table B.1 presents the results. First and foremost, even with this large body of interactions, the move-out coefficients remain statistically significant and stay within a close range in terms of magnitude, which constitutes strong evidence in favor of the robustness of the results. Second, the already discovered distinctly diminished effect for university graduates becomes apparent once again. Consulting the interaction term of children who went to the highest form of secondary school in Germany, the Gymnasium, shows that this lowers the reaction also. This constitutes a better proxy of the child's tertiary education costs than the parents' university dummy, as it is a prerequisite for going to university. Interacting both at the same time yields no significant results. This could be interpreted as university graduates not reacting as strongly as other households even if their child does not have a higher probability of going to university itself. It has to be kept in mind though that they save much more in the first place and hence are possibly already better prepared for retirement. This is good news from a macro perspective, as those who in general need to save more (i.e. those without a university degree) exhibit a larger upturn in savings.

Table B.1: Estimation results for specification including interaction terms

Random effects Tobit estimation results for regressions of three different left-hand-side variables, i.e. log consumption ($\log(C_{i,t})$), log saving ($\log(S_{i,t})$) and the saving rate ($SR_{i,t}$) are presented in this table. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The right-hand-side variables include one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($mo_{t-1+}^{1/1}$ etc.). Furthermore, a number of interaction terms with the move-out of the last child of a family are presented. The table further documents estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	**$\log(C_{i,t})$**		**$\log(S_{i,t})$**		**$SR_{i,t}$**	
No. of Obs.	131,233		131,233		131,233	
No. of HH	18,437		18,437		18,437	
Log-Likelihood	41,627.45		-235,464.18		29,759.60	
LR-Test ($\sigma_\mu = 0$)	33,000.00***		32,000.00***		37,000.00***	
LR-Test ($\beta_{MO} = 0$)	654.90***		340.44***		611.05***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$mo_{t-1+}^{1/1}$	-0.0252	(0.0047)***	0.5683	(0.0880)***	0.0279	(0.0044)***
$mo_{t-1+}^{1/2}$	-0.0123	(0.0025)***	0.1080	(0.0453)**	0.0103	(0.0023)***
$mo_{t-1+}^{2/2}$	-0.0298	(0.0050)***	0.6083	(0.0930)***	0.0325	(0.0046)***
$mo_{t-1+}^{1/3}$	-0.0049	(0.0047)	-0.2024	(0.0872)**	-0.0027	(0.0045)

$\mathrm{mo}_{t-1+}^{2/3}$	-0.0175	(0.0053)***	0.4212	(0.0992)***	0.0202	(0.0051)***
$\mathrm{mo}_{t-1+}^{3/3}$	-0.0190	(0.0072)***	0.7224	(0.1353)***	0.0279	(0.0068)***
$\mathrm{mo}_{t-1+}^{LC/4+}$	-0.0210	(0.0089)**	0.5763	(0.1691)***	0.0246	(0.0086)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Uni	0.0251	(0.0057)***	-0.2766	(0.1029)***	-0.0231	(0.0051)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Homeowner	-0.0263	(0.0032)***	-0.0387	(0.0592)	0.0165	(0.0030)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Rich	-0.0197	(0.0048)***	-0.1489	(0.0860)*	0.0092	(0.0042)**
$\mathrm{mo}_{t-1+}^{LC} \times$ High income	0.0013	(0.0069)	-0.0848	(0.1229)	-0.0023	(0.0060)
$\mathrm{mo}_{t-1+}^{LC} \times$ High income $\times$ Uni	-0.0397	(0.0099)***	0.0154	(0.1758)	0.0208	(0.0086)**
$\mathrm{mo}_{t-1+}^{LC} \times$ Low income	0.0021	(0.0043)	-0.0557	(0.0839)	-0.0081	(0.0043)*
$\mathrm{mo}_{t-1+}^{LC} \times$ Low income $\times$ Uni	-0.0066	(0.0123)	-0.0523	(0.2325)	0.0079	(0.0118)
$\mathrm{mo}_{t-1+}^{LC} \times$ Retired	0.0014	(0.0042)	-0.0121	(0.0773)	-0.0017	(0.0038)
$\mathrm{mo}_{t-1+}^{LC} \times$ Retired $\times$ Uni	0.0212	(0.0067)***	-0.2866	(0.1203)**	-0.0179	(0.0059)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Age $66-70$	-0.0111	(0.0047)**	0.2743	(0.0858)***	0.0125	(0.0042)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Age $71-75$	-0.0224	(0.0060)***	0.4542	(0.1090)***	0.0208	(0.0053)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Age > 75	-0.0159	(0.0074)**	0.5711	(0.1348)***	0.0229	(0.0066)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Old cohort	0.0039	(0.0052)	-0.1689	(0.0958)*	-0.0034	(0.0048)
$\mathrm{mo}_{t-1+}^{LC} \times$ Young cohort	-0.0005	(0.0064)	0.0387	(0.1200)	0.0071	(0.0061)
$\mathrm{mo}_{t-1+}^{LC} \times$ Old@MO	0.0049	(0.0050)	0.1741	(0.0921)*	0.0007	(0.0046)
$\mathrm{mo}_{t-1+}^{LC} \times$ Young@MO	0.0072	(0.0048)	-0.1352	(0.0886)	-0.0099	(0.0045)**
$\mathrm{mo}_{t-1+}^{LC} \times$ Old kid@MO	-0.0193	(0.0036)***	0.2238	(0.0662)***	0.0184	(0.0033)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Young kid@MO	0.0082	(0.0067)	-0.3910	(0.1275)***	-0.0184	(0.0065)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Gymnasium	0.0230	(0.0064)***	-0.2510	(0.1166)**	-0.0161	(0.0058)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Gymnasium $\times$ Uni	0.0021	(0.0102)	0.2444	(0.1840)	0.0035	(0.0091)
$\mathrm{mo}_{t-1+}^{LC} \times$ Kindergeld	0.0050	(0.0038)	-0.1422	(0.0698)**	-0.0115	(0.0035)***
$\mathrm{mo}_{t-1+}^{LC} \times$ Parents split	0.0116	(0.0078)	-0.6301	(0.1508)***	-0.0226	(0.0077)***
σ_{μ_i}	0.1065	(0.0008)***	2.0000	(0.0160)***	0.1030	(0.0008)***
$\sigma_{\nu_{i,t}}$	0.1250	(0.0003)***	2.1894	(0.0060)***	0.1046	(0.0003)***
ρ	0.4206	(0.0039)	0.4549	(0.0042)	0.4925	(0.0041)

Homeowners react measurably more as well – with significant coefficients in the log consumption and saving rate specification but an insignificant coefficient of the opposite sign in the log saving specification nonetheless. Households belonging to the top quartile in terms of income from assets – labeled "rich" here – react slightly stronger than other ones when looking at the saving rate and log transformed consumption. The coefficient in the log saving column contradicts that finding with a negative sign – even though only significant at the 0.10 level.

Addressing the influence of income, it is additionally interacted with the university dummy. This reveals that income itself does not have a significant influence on the reaction, but the combination of a university degree and high income does. In fact, summing up all the coefficients for a high income university graduate leads to a combined effect of -0.46 pp in the saving rate specification. A χ^2-test of the sum of all three parameters indicates insignificant difference from zero. Hence, university graduates react more weakly, but if they earn a lot, their reaction is about as strong as that for the base case.

There is no significant effect for retired households who have raised children. Including a double interaction with a university degree reveals that the already weaker effect of university graduates receives an additional cut in retirement. This leads to a reverse effect, indicating retired university graduates save even less than they did in their working years when children were still present. This could in part be due to the fact that they have saved more over the course of their lives and hence can afford to consume more in retirement. It could also be interpreted as a hint that high education households do a better job at effectuating the consumption smoothing as introduced in the life-cycle model and more of them dissave in old age.

Interaction of age-group dummies for ages 66 to 76 and above discloses another phenomenon. These households save significantly more again and downgrade their consumption. This could be deciphered as evidence in favor of Love's (2010) hypothesis of enhanced bequest motives for families with children. However, other explanations, such as longevity and related health expenditure and wealth adequacy concerns, are conceivable as well. To shed more light on these questions, actual wealth levels would have to be incorporated into the analysis.

Cohort effects are insignificant, suggesting the effect to be stable for different generations. If households belong to the oldest quartile in terms of parental age at move out of the last child, no significant effect can be observed, with the log saving specification constituting an exception. So by tendency, the effect is slightly amplified, as hypothesized by Coe & Webb (2010). Overly young parents on the other hand, i.e. household heads being under the age of 45 upon an only child's departure and between 48 and 49 for larger families, bring about a significantly diminishing effect in the saving rate specification and insignificant tendencies in that direction in the other specifications as well. This suggests that for these households retirement is too far in the future and elevating per capita consumption is too tempting to pass.

Children who are relatively old when they move out, i.e. they belong to the oldest quartile for age at move-out, cause a stronger reaction. This seems comprehensible, as they have lived in the household longer and possibly deteriorated the parents' ability to accumulate resources more than children exiting at younger ages.

Cases where parents received child allowance ("Kindergeld") before the child moved out exhibit an attenuated reaction in the saving measures but no significant interaction coefficient in consumption. This is quite interesting, since these households change their consumption like everyone else, but they do not save a lot more – apparently due to the drop in net income. If a move-out coincides with parental separation, the effect is again alleviated, albeit non-significant in the log consumption specification. Hence, a similar situation as with "Kindergeld" can be assumed, where the split results in a possibly even larger drop in household income. In both cases the reaction to the change in income is not fully covered by the income control variables.

C Additional Results

Table C.1: Estimation results for baseline specification with alternative LHS variables

Random effects Tobit estimation results for regressions of three alternative left-hand-side variables, i.e. log total consumption ($\log(TC_{i,t})$, consumption not excluding real savings), log financial saving ($\log(FS_{i,t})$) and the financial saving rate ($SR_{i,t}$) are presented in this table. The latter two refer to the amount of money that is left over at the end of the month and do not include real saving, which is calculated under certain assumptions (see footnote 3) for the baseline specification documented in Table 6. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($mo_{t-1+}^{1/1}$ etc.). The table further documents coefficients for the control variables, the constant coefficient, estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Year, age and cohort dummies are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	**$\log(TC_{i,t})$**		**$\log(FS_{i,t})$**		**$FSR_{i,t}$**	
No. of Obs.	153,358		153,358		153,358	
No. of HH	21,589		21,589		21,589	
Log-Likelihood	59,404.90		-281,928.21		35,893.08	
LR-Test ($\sigma_{\mu_i} = 0$)	44,000.00 ***		43,000.00 ***		48,000.00***	
LR-Test ($\beta_{MO} = 0$)	392.26 ***		182.39 ***		367.39***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$mo_{t-1+}^{1/1}$	-0.0313	(0.0025)***	0.4969	(0.0596)***	0.0305	(0.0024)***
$mo_{t-1+}^{1/2}$	-0.0097	(0.0022)***	0.0837	(0.0537)	0.0075	(0.0022)***
$mo_{t-1+}^{2/2}$	-0.0371	(0.0027)***	0.6015	(0.0655)***	0.0363	(0.0027)***
$mo_{t-1+}^{1/3}$	-0.0020	(0.0042)	-0.1773	(0.1055)*	-0.0020	(0.0044)
$mo_{t-1+}^{2/3}$	-0.0152	(0.0048)***	0.4093	(0.1195)***	0.0159	(0.0049)***
$mo_{t-1+}^{3/3}$	-0.0198	(0.0048)***	0.5291	(0.1172)***	0.0236	(0.0048)***
$mo_{t-1+}^{LC/4+}$	-0.0253	(0.0052)***	0.6578	(0.1324)***	0.0287	(0.0055)***
Parents $split_{t-1+}$	0.0136	(0.0019)***	-0.4609	(0.0471)***	-0.0179	(0.0019)***
Death of $Partner_{t-1+}$	-0.0140	(0.0026)***	0.2415	(0.0622)***	0.0160	(0.0025)***
Single	-0.0320	(0.0019)***	0.5770	(0.0466)***	0.0339	(0.0019)***
Single × Female	0.0113	(0.0021)***	0.0639	(0.0519)	-0.0067	(0.0021)***
No. of add. Adults	0.0104	(0.0018)***	-0.2718	(0.0436)***	-0.0113	(0.0018)***
1 child	0.0368	(0.0018)***	-0.6559	(0.0444)***	-0.0365	(0.0018)***
2 children	0.0530	(0.0021)***	-1.0810	(0.0502)***	-0.0544	(0.0021)***
3 children	0.0679	(0.0032)***	-1.6762	(0.0795)***	-0.0748	(0.0033)***
4+ children	0.0716	(0.0042)***	-2.1829	(0.1068)***	-0.0879	(0.0044)***
Age of Child 0-12	-0.0057	(0.0015)***	0.1839	(0.0373)***	0.0071	(0.0015)***
Low Income	-0.1537	(0.0273)***	-3.1964	(0.7262)***	-0.1350	(0.0294)***
High Income	-0.0706	(0.0333)**	13.5416	(0.7814)***	0.3565	(0.0318)***
log (Low Income)	0.9149	(0.0026)***	4.2909	(0.0769)***	0.1386	(0.0031)***
log (Med. Income)	0.8934	(0.0028)***	3.8648	(0.0670)***	0.1204	(0.0027)***
log (High Income)	0.9031	(0.0031)***	2.1730	(0.0713)***	0.0756	(0.0029)***
Income from Assets	-0.0151	(0.0009)***	0.4214	(0.0218)***	0.0164	(0.0009)***
University Degree	-0.0261	(0.0017)***	0.4389	(0.0425)***	0.0259	(0.0017)***
Unemployed	0.0218	(0.0016)***	-1.1129	(0.0423)***	-0.0396	(0.0017)***
Self-employed	0.0054	(0.0022)**	-0.3637	(0.0538)***	-0.0080	(0.0022)***
Retired	0.0084	(0.0019)***	-0.2652	(0.0450)***	-0.0105	(0.0018)***
Homeowner	0.0043	(0.0013)***	-0.0681	(0.0302)**	-0.0040	(0.0012)***
Health-Concerns	0.0093	(0.0010)***	-0.2966	(0.0247)***	-0.0117	(0.0010)***
Constant	0.6656	(0.0226)***	-25.5856	(0.5433)***	-0.0113	(0.0018)***
σ_{μ_i}	0.1011	(0.0007)***	2.5192	(0.0183)***	-0.0365	(0.0018)***
$\sigma_{\nu_{i,t}}$	0.1151	(0.0002)***	2.5840	(0.0068)***	-0.0544	(0.0021)***
ρ	0.4356	(0.0035)	0.4873	(0.0038)	-0.0748	(0.0033)***

Table C.2: Fixed effects estimation results for baseline specification with alternative LHS variables

Fixed effects Tobit estimation results for regressions of two alternative left-hand-side variables, i.e. log financial saving ($\log(\mathrm{FS}_{i,t})$) and the financial saving rate ($\mathrm{SR}_{i,t}$) are presented in this table. Both refer to the amount of money that is left over at the end of the month and do not include real saving, which is calculated under certain assumptions (see footnote 3) for the baseline specification documented in Table 6. The statistic of a χ^2-test of the joint significance of the move-out dummies is presented in the third row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($\mathrm{mo}_{t-1+}^{1/1}$ etc.). The table further documents coefficients for the control variables. Year and age dummies are not presented for brevity. Cohort effects are time-invariant and are consequently omitted in the fixed effects regression. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	**$\log(\mathrm{FS}_{i,t})$**		**$\mathrm{FSR}_{i,t}$**	
No. of Obs.	153,358		153,358	
No. of HH	21,589		21,589	
Squared Loss	411,797.27		735.08	
χ^2-Test ($\beta = 0$)	8917.16 ***		2061.17***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$\mathrm{mo}_{t-1+}^{1/1}$	0.2931	(0.0940)***	0.0259	(0.0048) ***
$\mathrm{mo}_{t-1+}^{1/2}$	0.0093	(0.0722)	0.0085	(0.0033) **
$\mathrm{mo}_{t-1+}^{2/2}$	0.4118	(0.0908)***	0.0351	(0.0045) ***
$\mathrm{mo}_{t-1+}^{1/3}$	-0.2033	(0.1534)	0.0004	(0.0062)
$\mathrm{mo}_{t-1+}^{2/3}$	0.1648	(0.1638)	0.0098	(0.0066)
$\mathrm{mo}_{t-1+}^{3/3}$	0.1765	(0.1586)	0.0131	(0.0071) *
$\mathrm{mo}_{t-1+}^{LC/4+}$	-0.3148	(0.2327)	-0.0035	(0.0107)
Parents split$_{t-1+}$	-0.2023	(0.0818)**	-0.0043	(0.0041)
Death of Partner$_{t-1+}$	0.1888	(0.0952)**	0.0147	(0.0051) ***
Single	0.5282	(0.0755)***	0.0353	(0.0042) ***
Single × Female	-0.0321	(0.0880)	-0.0145	(0.0049) ***
No. of add. Adults	-0.1703	(0.0679)**	-0.0067	(0.0036) *
1 child	-0.4772	(0.0684)***	-0.0346	(0.0037) ***
2 children	-0.7610	(0.0903)***	-0.0463	(0.0049) ***
3 children	-0.9718	(0.1534)***	-0.0536	(0.0077) ***
4+ children	-0.9368	(0.2646)***	-0.0477	(0.0136) ***
Age of Child 0-12	0.2188	(0.0536)***	0.0066	(0.0024) ***
Low Income	-1.7630	(0.9558)*	-0.1176	(0.0583) **
High Income	10.7498	(0.9390)***	0.2476	(0.0588) ***
log (Low Income)	3.7333	(0.1072)***	0.1109	(0.0072) ***
log (Med. Income)	3.5042	(0.0804)***	0.0946	(0.0043) ***
log (High Income)	2.1601	(0.0882)***	0.0636	(0.0063) ***
Income from Assets	0.2324	(0.0207)***	0.0081	(0.0010) ***
University Degree	0.1579	(0.0904)*	0.0157	(0.0049) ***
Unemployed	-0.8657	(0.0526)***	-0.0301	(0.0026) ***
Self-employed	-0.0658	(0.0799)	0.0002	(0.0041)
Retired	-0.3086	(0.0540)***	-0.0121	(0.0026) ***
Homeowner	-0.5397	(0.0467)***	-0.0284	(0.0025) ***
Health-Concerns	-0.1701	(0.0272)***	-0.0065	(0.0012) ***

Table C.3: Estimation results for baseline specification comparing log consumption including and excluding support payments to non-resident children

Random effects Tobit estimation results for regressions of log consumption ($\log(C_{i,t})$) and log household consumption ($\log(HHC_{i,t})$, i.e. excluding payments to non-resident children) are presented in this table. The number of observations and households differs from the other analyses, since some observations have to be dropped due to missing data on support payments to non-resident children. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($mo_{t-1+}^{1/1}$ etc.). The table further documents estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	$\log(C_{i,t})$		$\log(HHC_{i,t})$	
No. of Obs.	145,425		145,425	
No. of HH	21,312		21,312	
Log-Likelihood	44,847.24		-10,629.07	
LR-Test ($\sigma_{\mu_i} = 0$)	27,000.00 ***		36,000.00 ***	
LR-Test ($\beta_{MO} = 0$)	378.52 ***		777.11 ***	
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$mo_{t-1+}^{1/1}$	-0,0336	(0,0028)***	-0,0702	(0,0043)***
$mo_{t-1+}^{1/2}$	-0,0103	(0,0026)***	-0,0344	(0,0042)***
$mo_{t-1+}^{2/2}$	-0,0417	(0,0031)***	-0,0806	(0,0049)***
$mo_{t-1+}^{1/3}$	-0,0070	(0,0050)	-0,0312	(0,0081)***
$mo_{t-1+}^{2/3}$	-0,0156	(0,0057)***	-0,0311	(0,0092)***
$mo_{t-1+}^{3/3}$	-0,0217	(0,0056)***	-0,0419	(0,0087)***
$mo_{t-1+}^{LC/4+}$	-0,0281	(0,0060)***	-0,0713	(0,0094)***
σ_{μ_i}	0,1076	(0,0007)***	0,1389	(0,0011)***
$\sigma_{\nu_{i,t}}$	0,1259	(0,0003)***	0,1792	(0,0005)***
ρ	0,4219	(0,0036)	0,3753	(0,0038)

Table C.4: Estimation results for log transformed non-housing household consumption per capita

Random effects Tobit estimation results for regressions of three different equivalence-scale adjusted left-hand-side variables of non-housing household consumption are presented in this table. Non-housing household consumption excludes housing expenditure as well as payments to non-resident children. The number of observations and households differs from the other analyses, since some observations have to be dropped due to missing data on housing expenditure and support payments to non-resident children. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The choice of right-hand-side variables represents the baseline specification and includes one-year lagged state move-out dummies differentiated by chronological order of move-out and total number of the household's children ($\mathrm{mo}_{t-1+}^{1/1}$ etc.). The table further documents coefficients for the number and age of children control variables, the constant coefficient, estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Other control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	$\log(\mathbf{nhHHC_{i,t}}/\mathbf{EQS_A})$		$\log(\mathbf{nhHHC_{i,t}}/\mathbf{EQS_B})$		$\log(\mathbf{nhHHC_{i,t}}/\mathbf{EQS_C})$	
No. of Obs.	142,680		142,680		142,680	
No. of HH	21,200		21,200		21,200	
Log-Likelihood	-70,985.31		-69,246.21		-69,638.33	
LR-Test ($\sigma_\mu = 0$)	17,000.00	***	17,000.00	***	17,000.00	***
LR-Test ($\beta_{MO} = 0$)	10,522.35	***	2,931.10	***	2,023.96	***
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
$\mathrm{mo}_{t-1+}^{1/1}$	0.3994	(0.0073)***	0.1853	(0.0071)***	0.0814	(0.0071)***
$\mathrm{mo}_{t-1+}^{1/2}$	0.2553	(0.0070)***	0.1410	(0.0069)***	0.1415	(0.0069)***
$\mathrm{mo}_{t-1+}^{2/2}$	0.3736	(0.0084)***	0.1609	(0.0083)***	0.0660	(0.0083)***
$\mathrm{mo}_{t-1+}^{1/3}$	0.1693	(0.0135)***	0.0851	(0.0133)***	0.1023	(0.0134)***
$\mathrm{mo}_{t-1+}^{2/3}$	0.2529	(0.0156)***	0.1360	(0.0154)***	0.1535	(0.0155)***
$\mathrm{mo}_{t-1+}^{3/3}$	0.4549	(0.0149)***	0.2321	(0.0147)***	0.1346	(0.0148)***
$\mathrm{mo}_{t-1+}^{LC/4+}$	0.8471	(0.0156)***	0.4574	(0.0154)***	0.4070	(0.0154)***
1 child	-0.4263	(0.0053)***	-0.2116	(0.0052)***	-0.0823	(0.0052)***
2 children	-0.6940	(0.0059)***	-0.3636	(0.0057)***	-0.2420	(0.0058)***
3 children	-0.8737	(0.0092)***	-0.4434	(0.0091)***	-0.3583	(0.0091)***
4+ children	-0.8601	(0.0118)***	-0.4496	(0.0116)***	-0.3792	(0.0116)***
Age of Child 0-12	-0.0141	(0.0046)***	-0.0193	(0.0045)***	0.1422	(0.0046)***
σ_{μ_i}	0.2222	(0.0018)***	0.2161	(0.0018)***	0.2162	(0.0018)***
$\sigma_{\nu_{i,t}}$	0.3508	(0.0008)***	0.3456	(0.0008)***	0.3469	(0.0008)***
ρ	0.2863	(0.0036)	0.2809	(0.0036)	0.2798	(0.0036)

Table C.5: Estimation results for specification with lagged move-out dummies comparing log consumption including and excluding support payments to non-resident children

Random effects Tobit estimation results for regressions of log consumption ($\log(C_{i,t})$) and log household consumption ($\log(HHC_{i,t})$, i.e. excluding payments to non-resident children) are presented in this table. The number of observations and households differs from the other analyses, since some observations have to be dropped due to missing data on support payments to non-resident children. The statistics of likelihood ratio tests of the individual random error variance being zero and the joint significance of the move-out dummies are presented in the fifth and sixth row. The move-out dummies that indicate the move-out of the last child of a family go from t (i.e. a move-out in the current year) to t-4 (i.e. a move-out four years ago) and also include a five-year lagged state-dummy (i.e. a move-out occurred five *or more* years ago). Furthermore, each one is interacted with a dummy variable that takes on the value one, if the household head has a university degree. The table further documents estimates for variances of the individual random error (σ_{μ_i}) and the general random error ($\sigma_{\nu_{i,t}}$) as well as the fraction of variance due to the individual error (ρ). Control variables are not presented for brevity. ***, ** and * indicate statistical significance at 0.01, 0.05 and 0.10 level respectively. Standard errors are presented in parentheses.

LHS-Variable	$\log(C_{i,t})$		$\log(HHC_{i,t})$	
No. of Obs.	138,305		138,305	
No. of HH	20,329		20,329	
Log-Likelihood	43,833.24		-8,949.90	
LR-Test ($\sigma_\mu = 0$)	35,000.00	***	27,000.00	***
LR-Test ($\beta_{MO} = 0$)	206.41	***	275.03	***
RHS-Variable	**Coeff.**	**Std. Err.**	**Coeff.**	**Std. Err.**
mo_t^{LC}	0,0022	(0,0035)	-0,0082	(0,0056)
mo_{t-1}^{LC}	-0,0243	(0,0038)***	-0,0477	(0,0060)***
mo_{t-2}^{LC}	-0,0302	(0,0039)***	-0,0596	(0,0061)***
mo_{t-3}^{LC}	-0,0355	(0,0041)***	-0,0537	(0,0064)***
mo_{t-4}^{LC}	-0,0282	(0,0042)***	-0,0479	(0,0066)***
mo_{t-5+}^{LC}	-0,0343	(0,0029)***	-0,0566	(0,0043)***
$mo_t^{LC} \times Uni$	-0,0003	(0,0071)	-0,0163	(0,0109)
$mo_{t-1}^{LC} \times Uni$	0,0131	(0,0075)*	-0,0040	(0,0114)
$mo_{t-2}^{LC} \times Uni$	0,0075	(0,0080)	0,0087	(0,0122)
$mo_{t-3}^{LC} \times Uni$	0,0302	(0,0084)***	0,0129	(0,0128)
$mo_{t-4}^{LC} \times Uni$	0,0225	(0,0088)***	0,0147	(0,0133)
$mo_{t-5+}^{LC} \times Uni$	0,0161	(0,0054)***	0,0085	(0,0080)
σ_{μ_i}	0,1077	(0,0008)***	0,1400	(0,0011)***
$\sigma_{\nu_{i,t}}$	0,1243	(0,0003)***	0,1756	(0,0005)***
ρ	0,4291	(0,0037)	0,3884	(0,0039)

D Description of utilized variables

Table D.1: Description of baseline variables

The SOEP variables in the middle column are taken from “SOEPlong”, i.e. the multi-wave dataset in long format provided by the DIW. Naming convention in this table is: table_name.VARIABLE_NAME. For variables that are based on other constructed variables, the SOEP variables underlying those are not mentioned for a second time in the middle column.

Variable	SOEP Variables	Description
i	hl.HID	Unique household identifier
t	hl.SVYYEAR	Survey year
$FS_{i,t}$	hl.H2748	Financial saving per month
$an_{i,t}$	hl.H2694	Annuity payments towards mortgage per month
$\left(\frac{am}{an}\right)_{i,t}$	hgen.HGOWNER hgen.HGMOVEYR	Calculated ratio of amortization to annuity $\left(\frac{am}{an}\right)_{i,t} = \frac{1}{(1+r)^{30+1-ed_{i,t}}}$ With $ed_{i,t}$ equal to the elapsed duration of the mortgage and r equal to the fixed 30-year mortgage-rate
$RS_{i,t}$		Real saving per month $RS_{i,t} = \left(\frac{am}{an}\right)_{i,t} \times an_{i,t}$
$S_{i,t}$		Total saving per month $S_{i,t} = FS_{i,t} + RS_{i,t}$
$I_{i,t}$	hgen.HGHINC	Household income per month
$C_{i,t}$		Consumption per month $C_{i,t} = I_{i,t} - S_{i,t}$
$TC_{i,t}$		Total consumption (not excluding real saving) per month $TC_{i,t} = I_{i,t} - FS_{i,t}$
$hc_{i,t}$	hgen.HGRENT, hgen.HGHEAT, hgen.HGUTIL, hl.H2694, hl.H2695, hl.H2696, hl.H2697, hl.H2699	Housing costs: For renters: Rent, heating costs and utilities For homeowners: Annuity payments, maintenance costs, heating costs, utilities and management or maintenance fees
$SPtC_{i,t}$	pl.P0606	Support payments to non-resident children
$nhHHC_{i,t}$		Non-housing household consumption: Consumption less housing costs and support payments to non-resident children $C_{i,t} = I_{i,t} - FS_{i,t} - hc_{i,t} - SPtC_{i,t}$
$FSR_{i,t}$		$FSR_{i,t} = FS_{i,t}/I_{i,t}$
$SR_{i,t}$		$SR_{i,t} = S_{i,t}/I_{i,t}$
$No.of\ children$	hgen.HGTYP2HH, hbrutto.HHGR, kidl.K_NRKID, hl.H2729	Number of Children living in the household
$No.of\ Adults$	hgen.HGTYP2HH, hbrutto.HHGR	Number of Adults living in the household
$Age\ of\ oldest\ Child$	kidl.K_YOB, pbrutto.GEBURT	Age of oldest child living in the household
$Age\ factor$		Linear age-factor for age of oldest child living in the household; used for age-adjusted equivalence scale $Age\ factor = min\left(\frac{Age\ of\ oldest\ child}{18}; 1\right)$
EQS_A		Equivalence scale A: $EQS_A = (No.of\ Adults + No.of\ children)$

EQS_B		Equivalence scale B: $EQS_B = (No.of\ Adults + 0.7 \times No.of\ children)^{0.7}$
EQS_C		Equivalence scale C: $EQS_C = (No.of\ Adults + Age\ factor \times No.of\ children)^{0.7}$
$mo_{t-l}^{m/n}$	pl.P0590, pl.P0591, pl.P0592, pl.PMONIN	Dummy variable for move-out of m-th of n children l years prior to the current observation year t
$mo_{t-l+}^{m/n}$	pl.P0590, pl.P0591, pl.P0592, pl.PMONIN	State dummy variable for move-out of m-th of n children l *or more* years prior to the current observation year t
mo_{t-1+}^{LC}		State dummy variable that takes on the value one, if all children have left the household one *or more* years ago
$Parents\ split_{t-1+}$	pl.P0584, pl.P0585, pl.P0586, pl.PMONIN	State dummy variable for parental separation one *or more* years prior to the current observation year t
$Death\ of\ Partner_{t-1+}$	pl.P0587, pl.P0588, pl.P0589, pl.PMONIN	State dummy variable for death of partner one *or more* years prior to the current observation year t
$Single$		Dummy variable indicating if the household accommodates one adult; two-adult households mark the base case
$Single \times Female$	pbrutto.SEX	Dummy variable indicating if a single household head is female
$No.of\ add.Adults$		Count variable depicting the number of adults living in the household in excess of two
1 $child$ 2 $child$ren 3 $child$ren 4 + $child$ren		Dummy variables for the number of children living in and outside the household, i.e. a household is not downgraded after a child moves out, as that is already covered by the move-out dummies above
Age of child 0-12		Dummy variable indicating if the oldest child living in the household is younger than 13
$Low\ Income$ $Med.Income$ $High\ Income$		Dummy variables indicating whether a household belongs to the bottom quartile, the two middle quartiles or the top quartile of income in their respective age group
$\log(Low\ Income)$ $\log(Med.Income)$ $\log(High\ Income)$		Log transformed income by income group
Income from Assets	hl.H2704, hl.H2705, hl.H2706, hl.H2713, hl.H2714	Dummy variable indicating whether the household obtains income from assets, i.e. the sum of interest payments, dividends and rental and lease income less related expenditures per month
University Degree	pgen.PGBIL02	Dummy variable indicating whether the household head has a university degree
Unemployed	pgen.PGEGP	Dummy variable indicating whether the household head is unemployed
Self-employed	pgen.PGEGP	Dummy variable indicating whether the household head is self-employed
Retired	pgen.PGEGP	Dummy variable indicating whether the household head is retired
Homeowner	hgen.HGOWNER	Dummy variable indicating whether the household owns the dwelling it occupies
Health-Concerns	pl.P0080, pl.P0520,	Dummy variable indicating whether the household head is concerned with his health, i.e. he states he is "highly worried" with his health or he reports a satisfaction with his health of 4 or less on a scale from 1 to 10
Age <26	pbrutto.GEBURT,	Dummy variables for the age of the household head;

Age 26-30 *Age 31-35* *Age 36-40* *Age 41-45* *Age 46-50* *Age 51-55* *Age 56-60* *Age 61-65* *Age 66-70* *Age 71-75* *Age >75*	hl.SVYYEAR	persons aged 25 and younger making up the base case
Cohort 20-39 *Cohort 40-59* *Cohort 60-79* *Cohort 80-99*	pbrutto.GEBURT	Time-invariant dummy variables indicating in which time interval a household head was born; persons born earlier than 1920 depicting the base case
Y1992 *Y1993* *Y1994* *Y1995* *Y1996* *Y1997* *Y1998* *Y1999* *Y2000* *Y2001* *Y2002* *Y2003* *Y2004* *Y2005* *Y2006* *Y2007* *Y2008* *Y2009*	hl.SVYYEAR	Individual-invariant year dummies

Table D.2: Description of interaction variables

Variable	**Description**
$mo_{t-1+}^{LC} \times Uni$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head has a university degree
$mo_{t-1+}^{LC} \times Homeowner$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household owns its dwelling
$mo_{t-1+}^{LC} \times Rich$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household belongs to the top quartile in terms of income from assets
$mo_{t-1+}^{LC} \times High\ income$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household belongs to the top quartile in terms of income for the respective age group
$mo_{t-1+}^{LC} \times High\ income \times Uni$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household belongs to the top quartile in terms of income for the respective age group and the household head has a university degree
$mo_{t-1+}^{LC} \times Low\ income$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household belongs to the bottom quartile in terms of income for the respective age group
$mo_{t-1+}^{LC} \times Low\ income \times Uni$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household belongs to the bottom quartile in terms of income for the respective age group and the household head has a university degree
$mo_{t-1+}^{LC} \times Retired$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is retired
$mo_{t-1+}^{LC} \times Retired \times Uni$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is retired and the household head has a university degree
$mo_{t-1+}^{LC} \times Age\ 66-70$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is between 66 and 70 years old
$mo_{t-1+}^{LC} \times Age\ 71-75$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is between 71 and 75 years old
$mo_{t-1+}^{LC} \times Age > 75$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is older than 75
$mo_{t-1+}^{LC} \times Old\ cohort$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is born before 1940
$mo_{t-1+}^{LC} \times Young\ cohort$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head is born after 1959
$mo_{t-1+}^{LC} \times Old@MO$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head was older than 75 % of all household heads of the same family size at the time of the move-out of the last child
$mo_{t-1+}^{LC} \times Young@MO$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household head was younger than 75 % of all household heads of the same family size at the time of the move-out of the last child
$mo_{t-1+}^{LC} \times Old\ kid@MO$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the last child moving out was older than 75 % of all exiting children at move-out

$mo_{t-1+}^{LC} \times Young\ kid@MO$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the last child moving out was younger than 75 % of all exiting children at move-out
$mo_{t-1+}^{LC} \times Gymnasium$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the last child moving out went to the highest form of secondary school in Germany
$mo_{t-1+}^{LC} \times Gymnasium \times Uni$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the last child moving out went to the highest form of secondary school in Germany and the household head has a university degree
$mo_{t-1+}^{LC} \times Kindergeld$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the household has received child allowance before the child left
$mo_{t-1+}^{LC} \times Parents\ split$	Interaction dummy variable that takes on the value one, if all children have left the household one *or more* years ago and the move-out coincided with the separation of the parents